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Computer Weekly
Thursday, November 10, 1983
RECRUITMENT AND EDUCATION SUPPLEMENT

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Should the poachers pay a transfer fee?

by John Riley

COMPANIES that poach staff should compensate the companies that trained them. That was one of the viewpoints put forward by computer services companies which took part in a recent survey of training needs for the industry.

Over 1,600 computer services companies were canvassed by the survey, conducted by the Computing Services Industry Training Council (Cosit) this summer.

The response identified that there is a strong need for training in all areas except for computer operators and data preparation staff. It also unexpectedly revealed a particularly urgent need for more training in sales and marketing.

"We know how to train analyst programmers but we don't know how to train computer sales people," said Cosit's director, Gordon Ewan, who was formerly a training manager at ICL.

"The Computing Services Association's annual report has already said that the limiting factor for growth in the industry is the shortage of trained staff, and our survey has uncovered key shortages in marketing and selling. There is also a shortage of trainers too, skilled people with the ability to communicate their knowledge.

"A lot of unsupported facts and figures about employment needs are regularly bandied about in the computer industry," he said, "but there are not many answers. Therefore we decided it was time to analyse the situation systematically.

"The survey illustrates the classic dilemma," he continued. "Large companies train staff from scratch and other, smaller ones, which have no intention of training new entrants, live off their backs."

Cosit currently administers grants for companies to train either new or existing employees on behalf of the Manpower Services Commission. This year it has £600,000 available under its Training and Development Plan with a limit of £750 per trainee, and with no one company being allowed more than 30 grants.

Cosit has organised an all-day Training and Development Seminar to be held at the Strand Palace Hotel in London on November 28. Speakers will include top people from well known computing services companies including BIS Applied Systems, Systime, Kalamazoo, Hoskyns, CAP, QRH Computing, Arthur Andersen, the Computing Services Association, and also David Young, chairman of the MSC.

One of the ideas to solve the poaching problem given by respondents to the Cosit survey was to introduce a transfer fee, or a levy to make the poachers reimburse part of the training costs.

"A transfer fee, like you have in football, is attractive," said Ewan, "but would be impossible in practice."

The most rapidly expanding areas revealed by the survey were sales staff, applications programmers and field maintenance engineers – over 60% of companies employing these categories predicted expansion of these sectors.

Around 50% of those companies employing consultants, operation support staff and systems analysts and programmers predicted expansion of their needs in the future.

Although 62% of the companies expected to increase their staffing of applications programmers, 9.8% actually predicted that they would shed staff. A decline in operation support staff was predicted by 7.4% of the companies and 5.2% predicted a drop in their need for systems analysts and designers.

Two thirds expected to expand their training in the non-administrative sectors.

Ewan was disappointed by the response to the survey: of the 1,600 computer services companies canvassed, only 81 replied.

"It was the companies that are interested in training that replied, so the results will be biased," he says.

The Manpower Services Commission spends £1,500 million on training each year, and of that only £16-20 million goes on computing.

Ewan believes that the money is best spent helping to provide short, intensive periods of training combined with on the job reinforcement. At present he only has £600,000 to spend doing this, although there is a possibility of a further £75,000 being granted by the MSC later this month.

EWAN . . . "A transfer fee is attractive."

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CSA prepares for new Euro attack

by John Kavanagh

THE UK computing services industry is gearing up for a major assault on Europe following the election of BIS chairman Roger Graham to a top job in the European Computing Services Association.

Graham's appointment as vice-president for two years comes just as the UK Computing Services Association is planning new initiatives to get UK firms into Europe.

It also coincides with new aggression from the French services industry, which is campaigning for more government backing for export effort (see page 4).

Graham, chairman of BIS' computing companies, is on the UK CSA's international marketing committee, which is determined to make its mark in 1984.

"Last year European services business totalled $8,100 million while the US market was $26,400 million – yet the total gross national products are roughly the same," Graham said. "This means there's a lot of potential business to be done in Europe."

The UK's share of the European market was $1,500 million.

Graham said UK exports to Europe had fallen in recent years because it was easier to sell to the US, where there were no language problems.

"CSA members probably have more people in the US than in Europe," he said. "A lot of companies have over 100 staff in the US – but very few have that number in Europe."

He added: "UK people and products have a good reputation in Europe – but the number of products sold is not that great."

Clive Telfer, chairman of the CSA's international marketing committee and a director of systems firm AIM, said: "There's always been a CSA committee looking at exports but it's been passive. But now there's new impetus from members."

Telfer's committee also includes Scicon managing director Warren Werblow.

"Through the committee small firms can talk to experienced people like Roger Graham and Warren Werblow," he said. "We will help them by giving an insight into what is involved in exporting and government support."

Other issues Graham will campaign on include telecommunications, data protection legislation and software copyright. He said there was a lot to do on the communications scene.

GRAHAM . . . Companies have staff in US rather than Europe.

ITT chases IBM personals

US MULTINATIONAL ITT is going after IBM in the personal computer market. At next week's Comdex show in Las Vegas it will unveil ITT XTRA, an 8088-based micro which will run MS-DOS and much available IBM PC software. Prices should start around $3,500. ITT has already experienced the business micro market with its 2020 and 3030 machines.

Tymshare bid

GIANT US aircraft manufacturer McDonnell Douglas is set to buy ailing computer services company Tymshare for between $360 and $420 million. The aircraft company's computer subsidiary McDonnell Douglas Automation has the largest civil computer installation in the world and a commercial turnover of over $300 million a year.

Natural grant

STANFORD University in California has been given a $21 million research grant to develop natural language links to computers. The grant, one of the biggest yet made for an artificial intelligence project, comes from the US System Development Research Foundation, and goes to a team of leading US academics headed by Professor Jon Barwise of Stanford University.

Record breaker

RECORDS were shattered for attendance at last week's Compec, the UK's major annual computer industry show. The figure leapt 14% to 37,342. Around 500 companies, over 50 of them in Software Village, exhibited at the UK computer industry's marketplace, which is sponsored by *Computer Weekly*.

Hero jumps on IBM bandwagon

by Keith Holder

SMALL systems and communications specialist MDS last week jumped on the IBM network bandwagon with its own personal computer, the Hero, and a family of communications processors.

"IBM has focussed the market for us," said Gerry Meredith-Smith, MDS UK managing director. "What we are offering is a superior product at a cheaper price."

Company president Robert Amman said that IBM's 3270 personal computer is a clear sign that office automation will evolve from the 3270 network. "We will be in a position to supply our customers with high performance machines for this environment," he said.

Independent estimates put the figure for non-intelligent terminals in use with this network at three million.

The new machines will support the company's existing software, and are designed to give users access to IBM host computers for running applications programs.

The 16-bit Hero uses high-level languages like Basic and Fortran, and offers graphics, extended disc storage and optional full colour. It runs the company's H/OS operating system.

MEREDITH-SMITH . . . "Superior."

US bars Silicon Valley to Soviets

by George Black

THE computer Cold War froze harder last week when the US State Department made Silicon Valley a no-go area for Soviet citizens and diplomats.

The Russian Embassy in the United States was sent a new map of restricted zones that includes Santa Clara County, California, where many of the high technology start-up firms are concentrated.

A government spokesman said: "We've been trying ever since 1941 to convince the Soviet that travel controls are not in their interest or ours. Our move is a response to their revised list of restricted areas and corresponds closely to it."

American fears of technology espionage have been intensified with the seizure by West German and Swedish customs of two DEC Vax-11/782 minicomputers bound for the Soviet Union. One was intercepted at Hamburg on a tip from West Germany-based US officials, the other slipped through from there to Sweden, but was halted at Helsingborg.

They are thought to have been shipped by a New York firm to its South African affiliate. The South African authorities say they are mounting an inquiry with American help. One report states it centres on a West German dealer named Richard Müller.

The Vax is on the US controlled exports list and needs a special licence to leave that country.

But European governments view the seizures as showing a heavy-handed and unselective approach to the problem of preventing the Eastern bloc from gaining military know-how.

An official of the British Trade and Industry Department said that the Americans would not even listen to their allies on trade policy now.

Several UK industry experts argue that the Soviet aim would not be to capture complete systems for "reverse engineering", but to buy chipmaking equipment. A more serious instance occurred last year with the alleged disappearance in Paris of one such tool, a Perkin-Elmer Micralign.

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CAFS goes on all ICL 2900s

by Keith Holder

CAFS with everything is the new order of the day for ICL's 2900 series mainframes. The company's rapid access Content Addressable File Store (CAFS-ISP) will now be a standard feature on all current processors, including a new entry level system it was announced last week.

"I regard it as the turbocharger for the 2900 series. Its speed and ease of use has dramatically improved the price-performance of our mainframe series," said Peter Davidson, the company's business manager for mainframes.

ROUSELL . . . *BT couldn't wait.*

The company is also dropping prices on new CAFS systems by between 10-20% compared to last year's prices. The CAFS package has been shrunk from three cabinets to a mere nine circuit boards, since its introduction in 1979, and is incorporated in a new decision support controller. It can address enquiries with up to 16 terms and has a data handling speed of one MByte per second.

The controller can now offer twice the number of connections compared to previous 2900 disc controllers, said Davidson, and control 40 GBytes of disc storage.

Three of these controllers can be attached to a single processor giving a maximum database of 120 GBytes. Existing users can field upgrade their 2900 processors for around £35,000.

Field trials carried out at North Thames Gas gave a reduction time for file enquiries from two minutes to four seconds, said Davidson. A number of other trials showed an average 60 fold increase in speed, he claimed.

Davidson said that because CAFS used few instructions to achieve this, there was little load on the processor, which allows a smaller system to be used than would be necessary with other manufacturer's equipment. Security for files is provided by the processor system software, if necessary.

Also incorporated into the new systems is a VME-based software facility called Program Master. It is used for developing Cobol programs, and provides facilities for programme creation, editing, compilation and testing.

The newcomer to the range is the 2953, which is available both as a standalone system or as a system supporting distributed applications. Main store sizes of four, six and eight Mbytes are available, and the machine will support all current peripherals.

It costs £180,000 for an entry level system which Davidson said was around £100,000 cheaper than its closest previous equivalent. Like other 2900 mainframes, it uses the VME operating system.

Field upgrading is possible from this machine to the largest Super Dual 2988, without processor "swap out", a unique feature in the market, claimed Davidson. Users can still buy 2900s with the old disc controller, which is cheaper.

The CAFS system need not be confined to either ICL systems or mainframes, he added, though no specific plans to carry out any modifications has been agreed.

One cloud hanging over the company's announcement was its failure to capture a lucrative £32 million contract with British Telecom, to supply a system for directory enquiries.

Alan Rousell, director of ICL's UK operations, said: "We lost the contract simply on timing, BT said it couldn't wait any longer."

LAMB . . . *"This is our second breakthrough in the market."*

Comart wins prize careers contract

by Keith Holder

BRITISH microcomputer manufacturer Comart has won a government contract, worth possibly several million pounds, to supply computer systems to local authority career offices nationwide.

The contract, awarded by the Department of Employment, is connected with the Youth Training Scheme — YTS, formerly the Youth Opportunities Scheme (YOPs). The computers will be used to keep files on trainees and courses, providing easier data handling and to monitor trends in employment.

The Department will operate a scheme whereby local authorities can apply for a voucher to cover 50% of the cost which will be between £3,000 and £5,000.

Comart offer two systems based on eight or 16 bit computers to cater for the differing numbers of trainees to be handled. The smaller system can cope with up to 1,500 files, and the larger up to 3,000, said managing director David Broad. There is also the choice of diskette or hard disc storage.

The Department will have the final say on which system a particular office may purchase, he added. About three quarters of the orders are expected to be for smaller systems.

Software for the systems has been written by the Department, but the job of installing it will be left to Comart.

The company will also supply consumables and maintain the systems through its eight regional offices.

There are around 400 potential sites, and marketing director John Lamb said he expected a large percentage of these to adopt the systems. The first order has already been received.

"This is our second breakthrough in the market and follows our contract to supply systems for the GP scheme," said Lamb.

Broad said he expected demand for the systems to come in quickly, reaching a peak around the end of this year.

He said that this development provided "another stepping stone" towards supplying similar systems to the Department of Health and Social Security. If successful, this would provide orders for some 2,700 systems.

Centre improves communications

by Keith Holder

EASIER communications using computer terminals is the aim of the new communications centre, launched last week by Aregon and endorsed by John Alvey. It allows messages to be sent or received from other terminals, including those of other manufacturers, in an open system which gives anyone connected to the system access to its text and graphics databases, according to company chairman John Pearce.

Even a keyboard is not essential, he added, as messages can be handwritten using a lightpen or graphics tablet.

"It is a very exciting device, and will do a lot to open up this type of communication to a wider range of people," predicted John Alvey, British Telecom's (BT) director of development and procurement.

BT has had the system, called Excom 100, on trial along with British Gas as part of a development programme including office automation and communication between senior executives.

Connection to terminals on other networks is possible, using a separate modem link, using software emulation techniques.

The software is menu-driven, leading the user through prompts on the screen which can be selected by either the keyboard or lightpen. Modification to the communication channels are made through the keyboard.

This allows data transmission rates and databases to be selected which can then be regenerated through the menu. Security from tampering with these parameters can be achieved simply by unplugging the keyboard, leaving the user to select pre-set options with the light pen.

"Doing away with the need for entries to be made with a keyboard will help to take away some people's fear of using this type of system," said managing director Anthony Chandor.

The system, comprising a colour screen, keyboard, controller and light pen, cost £3,500. A graphics tablet may replace the pen.

Cable forms division to fight BT

by George Black

CABLE and Wireless has undergone an organisational shake up and formed a new value-added services division, in preparation for the struggle with a private sector British Telecom.

In the reshuffle, Chris Weeks, former head of Cable's minicomputer maintenance arm, becomes European regional director and a new post at the head of the value added services division is created for John Carroll.

The division will come into direct competition with British Telecom Enterprise, which recently appointed Colin Crook from Rank's Zynar subsidiary, to be its new chief.

Week's successor is Gabriel Shaw.

Since 49% of the firm was sold off by the government in November 1982, it has proved extremely successful.

Results for the first two years in the private sector were beyond the best City forecasts (see page 11).

The government has recently announced that it intends to halve its remaining stake in the company as it limbers up for the contest with BT.

While the battle for phone customers takes place between BT and Mercury, jointly owned by Cable and BP, BT Enterprises will be slogging it out with Cable's new VANS division.

BT and Mercury get telephone monopoly

by our Parliamentary Correspondent

BRITISH Telecom and Mercury Communications will be the UK's only licensed telephone network operators for the next seven years. This was confirmed by information technology minister Kenneth Baker to the Commons standing committee on the Telecommunications Bill last week. It applies to national and international cable, radio and satellite services.

Baker also told the committee that the government would explore the possibility of reducing some of the restrictions imposed on the use of circuits leased from BT and Mercury.

An easing of restrictions on the linking of leased circuits and public networks was being discussed. And group use of inland leased circuits could become a possibility.

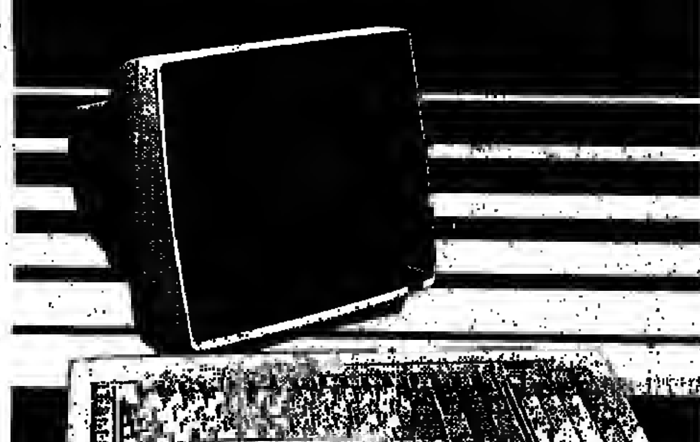
In addition, BT and Mercury might be allowed to use spare capacity in private networks in their public services.

The easing of restrictions could help companies bidding to offer value-added network services. Baker said the convergence of computing and communications had created an entirely new market for such services. About 60 suppliers had registered under general licence proposals for 200 services, and he expected rapid development in this area.

Baker said equipment standards would be ready by the end of 1984. Industry secretary Norman Tebbit would "shortly" announce new arrangements for BT approval of

products it sold itself, Baker said.

The Telecommunications Bill has been guillotined, which means it will be given a compulsory timetable for the remaining stages.



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ACT turns East to save Sirius

by John Kavanagh

BIRMINGHAM-based ACT is to protect its interests in the UK's best-selling business microcomputer, the Sirius, by getting it built by a partly-owned subsidiary in Hong Kong.

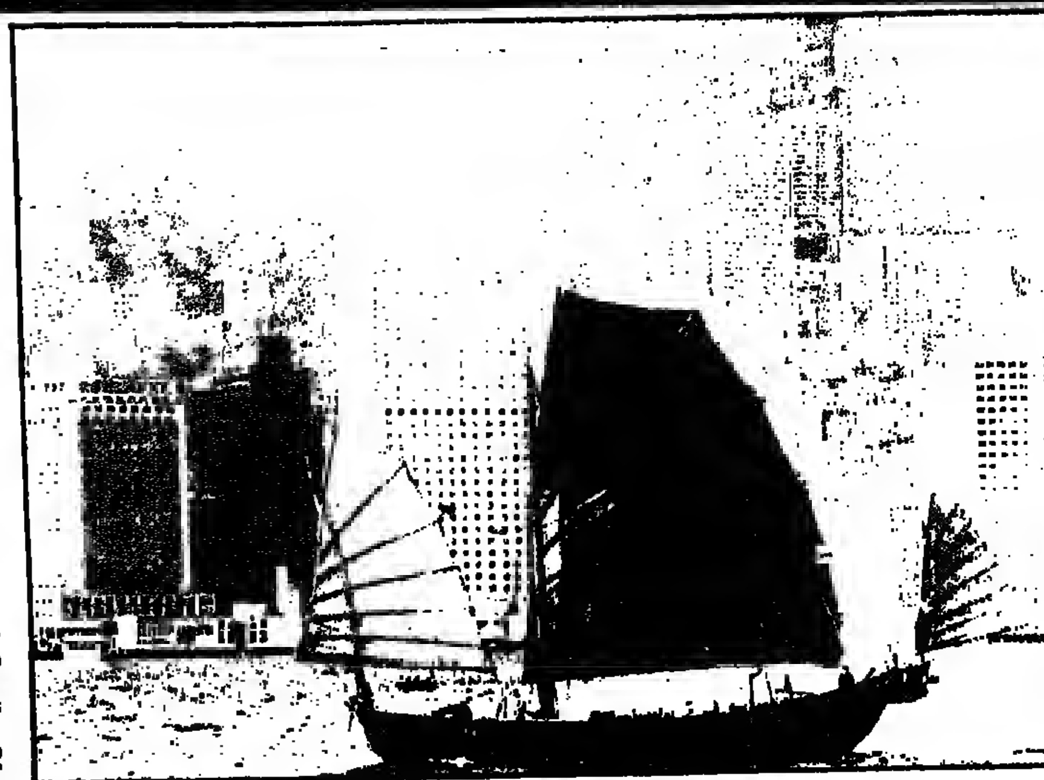
This emerged last week as Sirius manufacturer Victor Technologies reported record losses of $37 million in its third quarter. Victor's founder, Chuck Peddle, has stepped down as president and chief executive and a financial troubleshooter has been brought in to sort the company out.

Meanwhile, ACT, Victor's biggest customer, expects to distance itself even further from the company by signing up "a major US distributor" this week for the ACT Apricot microcomputer. Originally Victor was to be ACT's US outlet for the machine.

ACT's Hong Kong company, Swire Systems, is jointly owned with a holding company, Swire, part of the diverse Cathay Pacific group. It was formed two years ago to sell ACT systems in the Far East and contributes 3% of ACT's turnover.

"Swire Systems is talking to Victor about building the Sirius," said ACT marketing manager John Leftwich. "We're keen to have a second source and we're using our muscle as Victor's main customer to back the negotiations."

Earlier ACT was talking about building the Sirius itself. Leftwich said it had "cooled" on this idea.



Hong Kong . . . Home of Swire Systems, which could soon be making the Sirius.

The company has taken more orders than expected for its own 16-bit Apricot, and it aims to double production at Glenrothes in Scotland from the present 2,000 to 4,000 a month early next year.

Peter Davies, ACT managing director, now expects to sell 40,000 machines in 1984.

Victor's third-quarter slump followed losses of over $11 million in the second quarter. Revenues were $46.1 million. Debts stand at $90 million. Victor has called in a venture capital and company rescue specialist Michael Faherty in the US and Werner Kraus of Olympia Werke in Europe.

Olivetti in major re-shuffle

by Keith Hunter

OLIVETTI has reorganised its UK marketing operation as it takes a second stab at the IBM plug compatible mainframe (PCM) market.

Key changes involve the formation of a specialist product group and the recruitment of a specialist sales force.

Jeff Evans, the company's manager for PCM products, said that a staff of 11 would eventually serve the UK, and eight had been recruited already. They will concentrate only on this product range, he added.

"In the past, we tried to cover a wider product area with the existing sales force which led to a lot of administrative problems and ultimately caused a drop in sales activity," said Evans.

For three years the company has sold machines manufactured by Hitachi and IPL, aimed at the IBM 4300 and 308X market but has made little headway with the UK. The majority of existing sales have been for IPL machines and Olivetti has a 30% stake in the company.

Intel expects problems in doubling personnel

by Caroline Burgess

INTEL, the US microprocessor maker, is to double its UK workforce at its Swindon site by 1986. But it is anticipating problems in recruiting staff.

The majority of the 270 new jobs are for experienced electrical engineers. A spokesman for Intel said: "They are not easy to find. There is a shortage of good professional engineers and there are a lot of companies looking for them."

Intel began its recruitment drive this month with an "open evening" in Bracknell. It plans similar evenings in different parts of the country, backed up by newspaper and radio advertisements, next year.

So far the response has been poor. "We are planning a two-year build up but it will be a very expensive campaign," said the spokesman.

Peter Harverson, Intel's UK regional manager, said: "We want top calibre engineers experienced in microelectronics, who are looking for a challenging and rewarding career in high technology sales or sales support."

According to Harverson, Intel has increased its sales by 50% this year, despite the recession, and is expanding to meet the demand. It will also be expanding its building space.

"Our business is undergoing a major expansion with a very high demand for our products. The UK leads in many fields of computer technology and I can report that in the UK recovery, in this area, is well underway," said Harverson.

The Swindon site is responsible for marketing and support of Intel products throughout Europe. Intel decided to centre its European expansion at the UK site last year, with plans to eventually create up to 1,000 new jobs.

According to Intel, this plan is "going to schedule".

Thorn-EMI lands major US order

by Donald Kennett

THORN-EMI Datatech has landed a £10 million OEM order from Hewlett-Packard in the US for half-inch streaming tape drives. The deal could be worth £30 million to the company over the next two years.

Datatech marketing director, David Huntingdon, said: "We have signed six US OEM deals so far, mostly for start-stop drives, but this is by far the largest. It is also unusual for a non-US manufacturer to get an order of this size in the US."

Data products director Dr Duke Ebenezer added: "The range has been launched two years and we have been shipping to the US since January. But we are particularly proud of this order because Hewlett-Packard is extremely quality-conscious, and this is possibly the biggest order in the world for streaming tape drives."

HP has chosen the top model in the range of three. It streams at 100 inches-per-second and does true start-stop (with no repositioning after a stop) at 50ips. It also has an 800 bits-per-inch NRZ (non return to zero) format option as well as the 1,600bpi P-E (phase-encoded) format that is the standard for IBM-compatible tapes.

EBENEZER . . . *"Very proud."*

The drive is available now with HP-3000 series business computers. Early next year it will be available with H-P's larger scientific computers. H-P may also be interested in the other models in the range, one of which is claimed to be the world's smallest half-inch streamer.

Huntingdon said: "These are the best products of their kind in the world. It's unusual for a British company to be able to say that. Real growth is starting now after 18 months' evaluation by OEMs.

"Data communications has been the bigger side of Datatech's activities, but now we see the data products side (tape and disc drives) as the growth area for the future."

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GIBBENS . . . *Instant heroes and overnight villains.*

Gibbens sounds industry warning

by Nuala Moran

THE value added services industry is one of instant heroes and overnight villains, says Barney Gibbens, chairman of the CAP Group systems saftware house. He was speaking at the Pergamon Infotech conference on the state of the art in commercial data processing last week.

Value added services is the phrase coined to describe the process of making an inert computer do something useful. What every successful value added services company does is pick a niche in its chosen marketplace and "exploit it for all it is worth".

According to Gibbens, a company that scores a bit cannot afford to rest on its laurels.

"Yesterday's success has to be used to fund today's new venture," he said.

Each company takes a basic offering and adds the necessary ingredients to produce a solution to an information handling problem. This means that over 50% of the industry across Europe actually sells hardware, which according to Gibbens is contrary to how most people view the industry.

"In fact," said Gibbens, "most people in the industry are systems integrators. They take hardware and software offerings from all over the place to match a client's requirements.

"What is happening now is that companies have come in after 10 years of being the lapdogs of the hardware producers, when they had to beg to be allowed to write software, to being the prime contractors writing better systems than the manufacturers."

Manufacturers have belatedly found out that it is software that sells hardware. This explains the recent agreements of IBM with Rolm and Honeywell with Ericsson, the two hardware companies realising they need to know about telecomms to be able to market integrated systems.

This is also the reason why GEC is putting all its software together. Gibbens said: "This means there are some powerful competitors coming into the area where the CAP group has been for 20 years.

"The really frightening prospect is the deregulation of AT&T's information systems division in 1984. This will bring an enormous competitor into the industry."

The requirement for different skills and knowledge means that all companies need to have a subcontractor capability. Gibbens said: "We need to be like the civil engineering industry. The industry doesn't have the breadth of disciplines it needs to solve every problem so it has to go out and find them."

Exports earn France one quarter of cash

by Jack Gee

FRANCE's computer service industry, Europe's leader and second-ranking worldwide behind the US, is now earning one quarter of its revenue from exports, according to its trade organisation Syntec.

Estimating the global volume of French export sales of software at 12 billion francs (£1 billion), Michel Bossard, Syntec's processing chief, says: "Some of our members are marking up over half their turnover from foreign sales."

Pierre Dellis, chief administrator of Syntec, commented: "Our overseas activities now form an integral part of our general strategy."

But Syntec officials complain that French civil service red tape is handicapping their efforts on the export markets.

Dellis says: "There is still a strong preconceived idea that only hardware can be sold abroad. However, by 1990, software's share of costs in computer systems will account for 80% of the total cost."

Syntec is therefore launching a campaign to convince the French government to support software rather than to bank on a hypothetical success for France in the hardware field.

The government's export insurance firm, Coface, makes a rule of covering only export projects in which 90% of the equipment is of French manufacture and makes no allowance for the intellectual contribution.

Syntec's Dellis points out that profits of US software houses are in the region of 7% of turnover while in France the proportion is only 2%.

"But a franc invested in a French software firm yields 10 or 20 francs," says the software industry's spokesman. "If it is put into a downhill industry like steel it produces only 80 centimes."

Dellis stressed that France's software industry is not seeking cash aid from the government but was only asking it not to put a spoke in the wheel of computer service suppliers.

Computing is increasing in popularity at university

by John Riley

THE queue of school-leavers waiting to study computing at universities is growing and the number of applicants so far this year is up on the same period last year, it was announced last week.

In making the announcement, the Universities Central Council on Admissions (UCCA) warned that as only one third of the expected candidates have applied so far, this figure, based on first-choice subjects, is only provisional.

Figures released this week by UCCA for the number of candidates putting computing as their first choice last year also show a steady rise. The number rose from 4,280 in 1981 to 4,345 in 1982 and last year 4,473 school-leavers applied.

Comparable figures for electronic engineering are not available. "Universities mix electronics in with a variety of subjects, so it is not possible for us to keep track of it," said UCCA's general secretary, Ronald Kay.

However, the figures for the total number of electrical engineering candidates last year, which includes electronics engineering, shows a fall from 5,853 in 1982 to 5,658.

Standards work nears fruition

by Donald Kennett

THE results of 12 years' work on design standards for telecommunications systems are ready for widespread use.

A Specification and Description Language (SDL), developed by telecommunications researchers in CCITT (the International Consultative Committee on Telephony and Telegraphy), is thought by its users to be generally applicable outside the telecommunications industry, particularly in concurrent systems.

Roberto Saracco, a long-standing member of the development group and a senior computer systems engineer at Italy's CSELT national telecommunications laboratory, said at a seminar held by GEC earlier this month that the main parts of SDL were available now in draft form and would remain substantially unchanged when published by CCITT next year.

As few modifications as possible were being made to the language from now on, so that users could have confidence in its stability and it could go into widespread use, he added.

Work on any major changes required by user demand is to be postponed until the next CCITT study period, which starts in 1985.

"Researchers tend to assume that any new version will be better, but users and telecommunications administrations assume the old one was better," he said.

Researchers in 22 countries already had the language in trial use, and many organisations, particularly universities, were working on tools to make it easier to use, he said.

His own outfit, CSELT (Centro Studi e Laboratori Telecomunicazione), had spent $1 million on developing its EGS software to transform system specifications from the graphical form of SDL into the linear procedural form and check their formal correctness.

It was selling the software at $20,000 a copy in the interests of spreading the use of the language, he added.

Other examples of the tools available to SDL users include three packages from the Royal Melbourne Institute of Technology in Australia: Melba, which generates programs in the telecommunications systems language Chill from an SDL listing; Caddie, a computer-aided design system for writing specifications or descriptions in SDL; and GES, a general exchange simulator.

Similar concepts and tools have been used in the development of System X in the UK. But since most of the work has been done to a tight schedule, the last thing the System X team wanted was to use a new language before it was stable.

SDL was one of three major projects designed to tackle the range of software problems facing CCITT in 1968. The other two were Chill, which was completed at the end of 1979, and MML, the man-machine interface language which still needs a considerable amount of work before anything useful results.

Researchers are finding it difficult to reach agreement on the commands that will go into MML, according to Saracco, because their definition depends on the designer's view of the structure of a system and the functions it has to perform, and these views vary considerably.

Sinclair woos BBC on micro

by Caroline Burgess

HOME computer giant, Sinclair, is [illegible] for a second bite at the BBC's microcomputer contract when it comes up for renewal next autumn. It is also keeping a watchful eye on attempts to launch an ITV equivalent.

Sinclair has written to the BBC asking if the contract will be put out to open tender, and requesting details and specifications for any proposed new machine.

"We are expressing our interest in the contract and asking the BBC what is going on," said a Sinclair spokesman. "But as yet we have not received any reply."

Acorn [illegible] current contract, [illegible]

"The BBC has not expressed any dissatisfaction with Acorn and we have no intention to move," said a spokesman. "There is no reason for a change."

Meanwhile the Independent Television companies are investigating the possibility of an ITV micro and have submitted proposals to the Independent Broadcasting Authority (IBA), ITV's regulating body.

"Discussions are continuing but no decision has been made," said David Shaw of the Independent Television Companies Association. "We have to wait for a response from the IBA."

[illegible] the individual companies are [illegible] to meet on December 12.

SALES BRIEF

Building society links its branches

THE Town and Country building society has ordered an NCR V8575-II mainframe to run a network linking all its 65 branches. The network was built up on an NCR V8570, which will now be used for system development and to run systems that are outside the network.

US firm flies high

INFORMATICS general corporation of Palo Alto, California, has won a £2.1 million contract to develop, test and deliver an intelligence data handling system for the US airforce. The system will be installed at the Ramstein Airforce base in West Germany.

Quest for drives

AN order for £250,000 worth of Ampex DFR disc drives has gone to distributor Quest International. The drives will be used in the Micos and Optim ranges of mini and microcomputer systems.

STC joins towns

STC has won the order to install and commission the 140Mbit/second optical communications system that will link Birmingham and Bristol, completing the southern end of the figure of eight trunk network being constructed by Mercury Communications, the private telecomms company. Meanwhile Plessey will install 565Mbit/second optical fibre system between Nottingham and Sheffield for British Telecom. This brings the value of Plessey's optical fibre contracts with BT over £3.3 million.

Bank buys

ORION Royal Bank, part of the Royal Bank of Canada Group, is to buy £227,000 worth of Data Logic PTS intelligent terminal systems for the dealer departments in its City offices. The system will consist of 32 workstations, with nine-inch monitors, each station having two or three screens. The workstations will be linked to Orion's IBM 3033 mainframe.

System order

ONE of the first US customers for Data General's comprehensive electronic office (CEO) system is chartered accountant Morison [illegible], which has placed an order worth £90,000 with MOB Systems, one of Data General's largest OEMs. Another Data General OEM, CAD/CAM [illegible] McAuto (UK), of Woking, has won an order for an MV10000 from Ricardo Consulting Engineers.

Assemble a deal

AN assembly contract worth £150,000 over five years has been won by CVO Electronics of Stevenage to assemble the Cambridge Systems Technology (CST) Procyon IEEE controller for the BBC Micro. CST used to do its own manufacturing, but had to go outside due to the growing demand for Procyon.

Cray to Berlin

A CRAY system worth $5.5 million will be installed in West Berlin at the beginning of 1984. The machine was chosen by the Ministry of Science and Research for use by the Technical University, the Free University and research institutes in West Berlin. Applications running on the system will include engineering and weather modelling.

Guernsey insures

THE States Insurance Authority in Guernsey has just taken delivery of a system to automate the calculation, payment and control of Social Insurance Benefits. The system, which was developed by the CAP Group, runs on an ICL ME29 computer.

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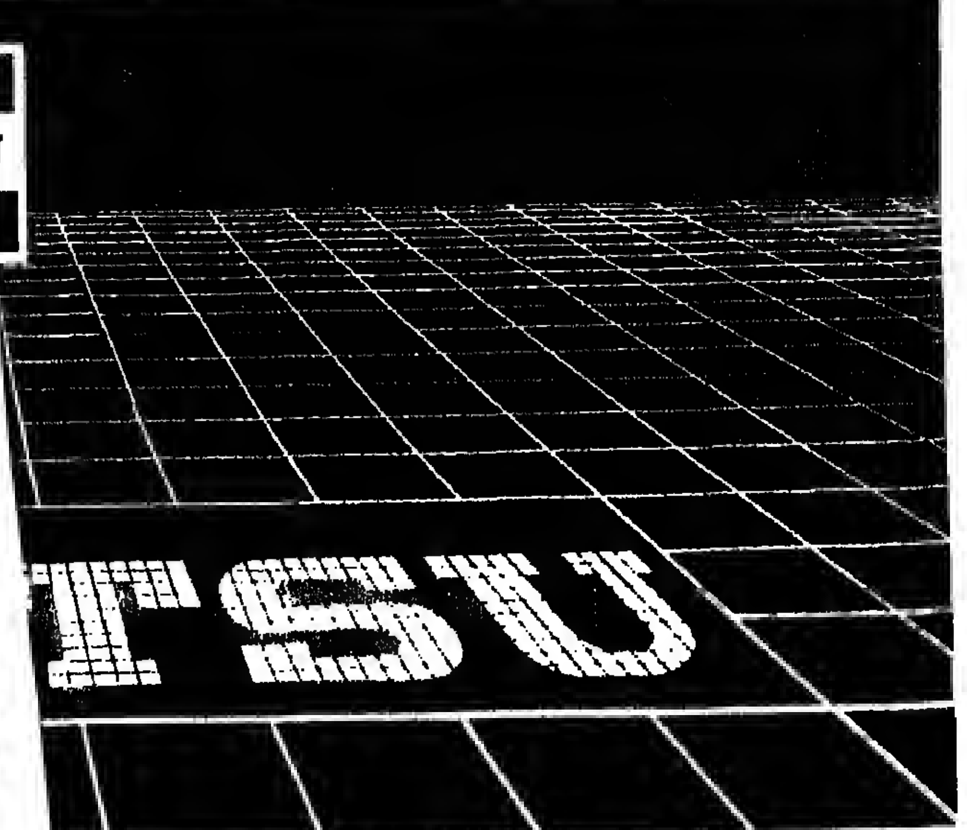

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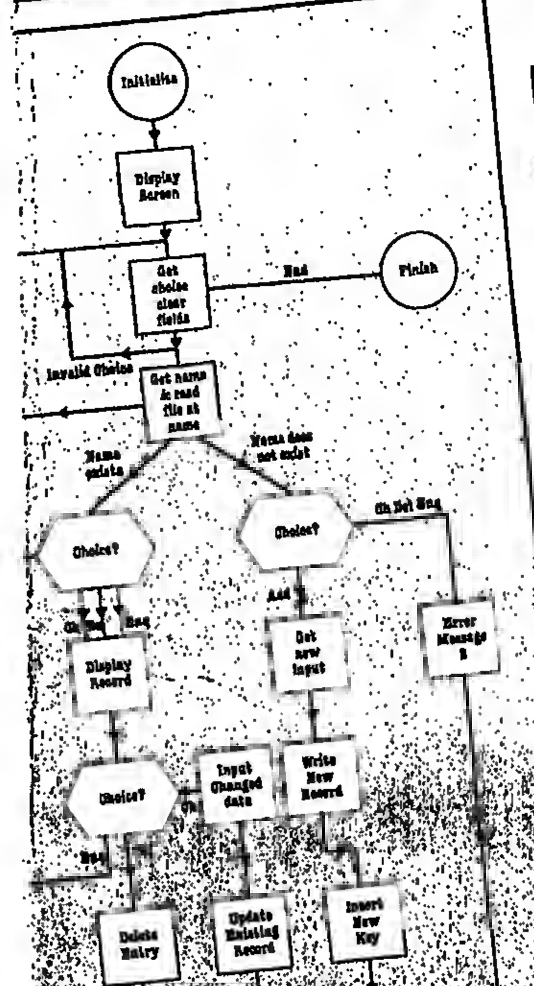

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Is an electronic brain imminent?

by John Riley

BRAIN cells on a chip could be the logical outcome of the impending marriage between biotechnology and computer technology. That was one of several futuristic views put forward last week by computer industry prophet Earl Joseph.

Speaking at the annual Pergamon Infotech state of the art review in London, Joseph argued that nature has already solved the problems of packing extremely high level integration into DNA enzymes, and that computers can use those circuits even though we do not understand yet how they work.

"By cutting out the brain part of DNA and defining it as one bit of memory, you can reach the smaller geometry needed to get self-manufactureability for intelligent systems without learning first how to design it," said Joseph, who is president, planning and development for the US consultants Antipatory Scieoces Inc.

He claims that there are unlimited possibilities. "An example is that at present image recognition is not efficient with computers – but if you could cut and splice that part of the DNA code which deals with image processing and put it in a robot, it would solve the problem. Biochips, or monoclonal antibodies, would enable you to grow computers rather than manufacture them."

Joseph, who formerly designed computer systems for Sperry, points out that the US military is very interested in biotechnological research.

As well as looking to the more distant future of bio-chips, Joseph sees present dangers in "computer wars" and in Luddism by DP managers.

"The real danger to the computer industry in the US from Luddites is from people who manage the computers and not the users," he warned.

"Data processing managers are getting frightened because there is a lot of de-skilling going on. It's slowly dawning on them that they are no longer supplying computer power and services – they are switching to becoming consultants."

The Luddism going on at present is both at the sophisticated level and also at the "axe to machine" level, he said.

The wars he talked of are the war with Japan; the war being waged on everybody by IBM, especially since its release from the US anti-trust suit; and the war in the microcomputer world.

However, Joseph did not offer only gloom and doom. He pointed out that the future is nearly upon us, with first steps already being taken to produce smart machines, talking and listening chips, computer systems on a wafer, and applications programs on a chip.

JOSEPH . . . "Luddite managers are the real danger."

CAP buys itself some education

by George Black

UK SYSTEMS house CAP is going into educational [publishing] buying $100,000 worth of Applied Systems Knowledge West London.

ASK, which develops [software] for micros in schools, has given extra shares to give CAP a stake in its operations, [but] give up any existing shares.

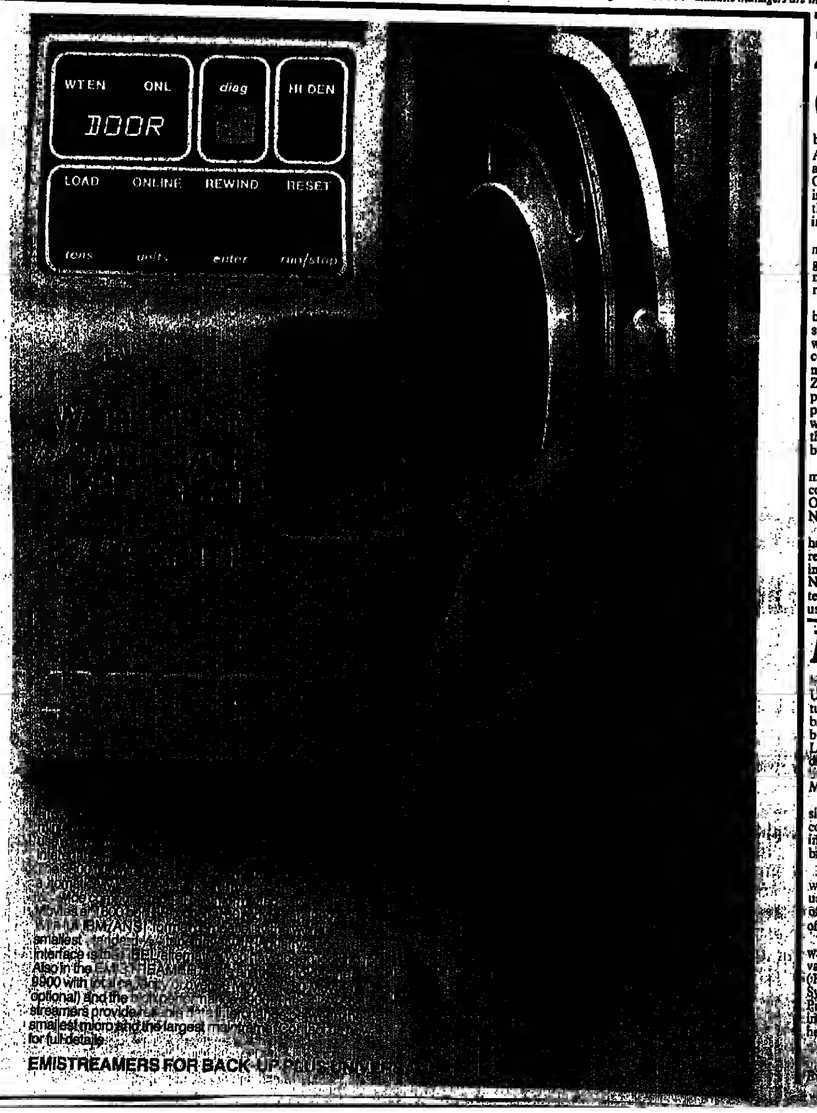
CAP's business [development] director, Hsrley Atkinson, commercial branch manager Elson, will have seats on the bosrd. But Atkinson [says] only be helping them in policy, not taking over the day running of the company.

He said he anticipated educational software would [increase] grest desl faster than [average] in general over the next few years.

"We've only been scratching surface up to now," he said.

ASK is expected to [turn over] £500,000 durring 1983-4, [with] whole msrket sector could be £1 Million next year.

ASK has had exports to Australia and New Zealand, South Africa, the United States and the Far East.



EMISTREAMERS FOR BACK-UP PLUS ONLY

Zygal steps into the OEM unknown

by Claire Gooding

A MULTI-MILLION dollar agreement with US manufacturer Convergent Technologies is bringing UK printer and communications specialist Zygal Dynamics into new territory.

Zygal is entering the OEM business, "adding value" to Convergent Technology N-GEN machines with its own communications and print products.

Zygal is hoping to get in on the boom area of distributed processing. "We are looking for users who want networks at a personal computer price," explained Desmond Flynn, managing director of Zygal Dynamics. "Typically, the people who are after a 10 or 15 personal computer clustered workstation would be interested in the kind of system we will be building."

The company regards the agreement with Convergent as "quite a coup" since its hsrdware is also ORMed by Burroughs, Prime, NCR and Gould-SEL.

Zygal plans to build "turnkey hardware", matching the specific requirements of customers by adding various other products to the N-GEN. It will address its familiar territory of banking and financial users, but also look further afield, hoping to take advantage of lively interest in distributed processing triggered off by IBM's own Personal Computer.

One of the unusual features of the N-GEN's native CTOS operating system is its ability to run Industry standard operating systems MS-DOS and CP/M multi-tasking systems. It is [also] able to run 15 or so Convergent Technology workstations [on] the same CP/M or MS-DOS applications but running only one printer and one printer.

"There's been a lot of interest in Concurrent CP/M and multi-tasking, and people have been talking about MS-DOS having multi-tasking capabilities. Effectively, we have there already with CTOS," said Flynn.

CTOS handles the disc [drive] such a way that several [users] can be accessing a single [file] without being aware of other users. It is effectively a "[virtual] driver" for peripherals, while the user is only aware of using [the] standard CP/M or MS-DOS.

Zygal, which took over [part of] McNulty's communications [group] Modular Technology when it crashed last year, is putting the emphasis on communications in the new venture.

Micro Eclipse fills gap

by John Riley

US MINICOMPUTER manufacturer Data General this week brought its new micro-Eclipse based system to Europe. Launched last week, the C/30 is designed to fill the gap between its [existing] microcomputer and its MV/4000 minicomputers.

The system is a commercial version of the S/20, but also offers a commercial instruction set, floating point accelerator and micro burst multiplex channel.

The C/30 is a 16-bit system which supports from five to nine users, and offers up to two Mbytes of main memory and 150 Mbytes of disc storage.

It runs all Data General's software, including the AOS (Advanced Operating System), RDOS (Real Time Disc Operating System) and MP/AOS (Multi-Processing Advanced Operating System) and also the Comprehensive Electronic Office [package].

Data General also intends to back IBM document interchange standards. It is to offer IBM's Document Interchange/Document Content Architectures (DIA/DCA) on its CEO when they are published.

Last week Data General announced in the US that it had agreed to develop interfaces with three PBX manufacturers, including the Rolm in the US.

information systems. "Firstly it [provides] information systems for large organisations, for use in applications such as inventory management and secondly, for the small business user who traditionally bought the CS range in the 1970s."

The price for a typical configuration, including the C/30 with half a Mbyte memory, 50 Mbyte disc, cartridge tape back-up, multiplexer, console, Microbase and operating system licence together with software credits is £27,016.

The entry level half Mbyte CPU processor alone is £8,240.

Deliveries are expected to begin in February.

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Where computers and communications meet

Telecomms is on a collision path

by John Riley

THE fast-moving computer industry is about to collide with the plodding telecommunications industry, and a shake-up is inevitable.

That view was put to Pergamon Infotech's annual state of the art conference last week by John Burren, head of information systems at the Rutherford Appleton Laboratory.

"The telecommunications industry has not kept pace with the computer industry," he said. "The computer industry is in excellent shape, but although communications has spectacular technology, it is not so healthy organisationally.

"The question is: will communications providers supply all the equipment to go on the end? That is difficult for a State monopoly: they either keep communications suppliers boxed in or let them compete, in which case they lose the monopoly," he added.

"In the UK the argument is polarised on who owns what, but that is not the major question. The question is how it is organised and divided up."

From a technical or economic point of view the organisational structure of the communications industry had to move towards that of the computing industry, away from State administration towards competitive business.

Burren, who heads the Project Universe experiment in high-speed, packet-switched networking, drew attention to the two new transmission technologies, optical fibre and satellite transmission, and to developments in electronic switching.

He cautioned against too much reliance by communications companies on the 64 Kbits/sec rate chosen for digitised voice networks. "One has the feeling that too heavy building in of 64 Kbits/sec would be a mistake. Computer people will see warning parallels with computer architectures having address ranges of 64 Kbytes."

Burren also had some reservations about the International Standards Organisation's Open Systems Interconnection standard reference model for the exchange of information between systems.

He argues that the model was proposed before satellite transmission technologies developed, and that it and its associated proposed standards do not allow for changes in the application of technology, do not allow for high speed information transfer, and do not cater for voice.

Project Universe, which is completing its first phase, a network which linked 150 computing devices and 12 Cambridge Rings in seven centres to on orbital test satellite via six satellite bridges.

The next phase of the project, currently being drawn up, will involve an experimental service using British Telecom's 2 Mbits/sec digital point-topoint service Megastream. The Alvey Programme is to look after the research aspects of that phase. Logica, GEC and British Telecom have formed an informal consortium to bid the technology.

BURREN . . . *Reservations about the Open Systems Interconnection.*

£420,000 invested in software firm

by Dave Medden

TWO British institutions have put £420,000 into Assyst, a software and services company, for a 35% stake.

Commercial Union Assurance and Baker Street Investment Company (Basic) will each have a 17.5% holding in the company.

Assyst is the holding company for Assyst UK Computer Services, a wholly-owned subsidiary of Assyst-RAET, based in Holland.

Jeff Wallace, Assyst marketing director, described the UK company as "a multi-service vendor, supplying everything from junior programmers to senior business consultancy and project management". In effect Assyst is a Hewlett-Packard OEM but it handles Data General kit too.

The Assyst-RAET group employs some 650 people, of whom 60 are based in the UK. It predicts turnover of £25 million in the fiscal year to December 31 against £20 million last time. Assyst will contribute about £1.5 million, and it is looking to triple that figure by 1985.

Managing director Theo Bosman said the company needed the cash "to increase our services, develop new products, and acquire systems houses".

When Assyst goes on the acquisition trail it will have two basic criteria: one is geographical — the moment the company has four offices, in Leighton Buzzard, Washington, Livingston, and Aberdeen — so it will look for a systems house in the Midlands or North-west.

Similarly it wants to bring new skills into the company — either by buying a vertical market specialist, or an outfit with Wang, or IBM System 38 experience.

Tandon allays fears

by Keith Holder

NBW quality control procedures have been adopted by disc drive manufacturer Tandon International in a bid to allay fears about its product quality. This follows severe criticism and a £10 million lawsuit from Torch Computers over deliveries of faulty or incomplete drives.

"We admit there were serious problems," said European general manager Bruno Kaelberer, "but rather than sit around we have done something about it."

From August this year the way the company deals with product quality has changed. Instead of each division operating independently, all European centres come under the direction of a central manager.

Kaelberer said European sites had now improved test equipment and were able to carry out mechanical and electronic testing and repairs without having to rely on the US parent.

"We are aiming for zero defects in our drives. No one is that good, but we expect to get close. Our problems started because we had so many orders and were shipping a huge number of products."

Sord launches 32-bit challenge to Vax in UK

by Keith Holder

JAPANESE micro manufacturer Sord Computer Systems has launched in the UK its first 32-bit machine, which it claims will outperform minicomputers like Digital Equipment's Vax.

The M685 uses two Motorola 68000 processors and a four Kbyte cache memory to achieve processing speeds up to 1.25mips.

"We see this as a breakthrough in performance levels for microcomputers," said UK general manager Michihiro Yamada.

The machine has sold well in Japan since its launch in May, with orders for over 1,000 units.

The British market, though different, could produce the same results, said Don Cater, deputy sales manager.

Although the machine will be offered to all sectors of the market, he saw the main emphasis to be on software houses, scientific establishments and universities. The latter would be attracted by the price tag of £16,500 for an entry level system, said Cater.

It will run Unix software and support high level languages, making it suitable for use as a development tool, he added.

It is designed to expand into a multi-user system, and can have up to 12RS232C ports. Networking facilities through the company's own network or X25 wide area systems is provided.

A 32-bit data bus allows access to all memory for high performance direct memory addressable peripherals.

The machine uses Sord's Unos operating system, which supports Unix and is particularly suited to multi-user systems, said Cater. It offers real time file access facilities, background tasking and context sharing.

In addition, for applications like CAD/CAM, there is an optional high resolution colour graphics terminal with built-in Sord graphics language, and a colour vector printer.

The hardware design for the machine was carried out by the US-based Charles Rivers Group.

YAMADA . . . *Breakthrough.*

NCC offers guidelines to first-timers

NATIONAL Computing Centre is offering guidelines for first-time micro users through a subscription service costing £14.50 a year.

The fee includes a 50% discount on half-day seminars and 30% on training courses run by the Centre's Microsystems division.

23 more shops

W H SMITH has opened 23 more in-store computer shops, taking the total to 30. The first three were opened four months ago and four more were added in October. They sell a range of micros including Acorn's BBC and Electron.

Singapore plant

MOTOROLA is to build a manufacturing plant with research and development facilities in Singapore. A statement by the company's Illinois office said the new factory at Ang Mo Kio will make communications equipment.

Call for tariff cut

A REDUCTION in the 17% EEC tariff on semiconductors, to bring it in line with the 6% tariff on computers, has been urged by the Electronics Economic Development Committee. A two-stage proposal has been sent to Kenneth Baker, Minister for Information Technology, asking the government to campaign for an immediate reduction to 10% at the EEC's annual meeting on tariffs in January.

Dealers named

ABS COMPUTERS, the US minicomputer manufacturer that extended down into the multi-user microcomputer market with its Orb machine, last week appointed two distributors: London-based Minnie Enterprises will sell the Orb to the financial market and Satellite Computer Systems will set up a dealer network for the South of England.

Most was negated

IN last week's review of F. R. Teshey's *Principles of Text Processing*, our reviewer, Richard Forsyth, wrote of the Status data management package: "It is most useful in large organisations dealing with tens of thousands of articles, scientific abstracts, technical reports and so forth." Due to an error this appeared as: "It is not useful. . . ." We apologise to all concerned.

16-User Simultaneous CP/M-80 and CP/M-86

The ACCRON — Multi Processor System — architecture has one service processor and up to 16 Z80 and/or 8086 based user processors. Each has high speed (1.7Mb/Sec) access to the shared resources such as disks, tapes and printers. The main features are:

- All standard CP/M-80 or CP/M-86 software will run simultaneously without modification.
- All systems can be (field) upgraded by simply adding more slave processor boards.
- Z80A based slave processors run CP/M-80, have 64KB RAM, 2 serial ports, 1 parallel port.
- 8086 based slave processors (8087 optional) run CP/M-86, have 128KB RAM, 2 serial ports, and memory can be expanded to 896KB.
- Comprehensive multi-user file management supports file and record locking.
- Automatic print spooling, system printers, local printers and inter-processor communications are fully supported.
- Field proven with over 100 installations. Users include British Telecom, NHS, Local Authorities and corporate users such as Cadbury.
- Many multi-user software packages are implemented including: multi-user Omicron Management Software, Taylor Micro Manufacturing Software, Dataflex and DBASE II.
- Largest range of microsystems based on 5.25", 8" or 14" winchester or cartridge disk drives.
- 12-slot single-user machine with 8" 1.3MB Floppy and 10MB winchester from £4340. Three-user machine from £6300.

More details from John Aherne or Steve O'Donnell.

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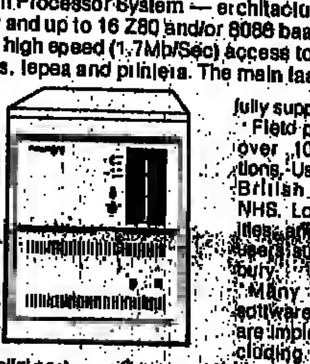

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French job places may shrink

by Jack Gee

A FALL in jobs available for high technology engineers in France could cut recruitment by between 20 and 30% in 1984, according to the Association of Electronic and Computer Engineers.

The association says the job crisis reflects the precarious state of the French economy, which is undermined by domestic recession; inflation, which will top 9% for the current year; and rising unemployment in most sectors of industry.

Computer and electronics companies are likely to seek higher productivity from staff already on their payrolls, rather than recruit new personnel for expansion projects.

The engineers association says that, following a government campaign to encourage early retirement, many white-collar veterans were replaced in 1982 by engineers hired for their first jobs. Very few experienced top-level staff were taken on.

This year, firms in the electronics and computer industry have slowed down recruitment of youngsters and have sought primarily to give themselves new muscle by attracting engineers with proven records. They are being hired for research and development and for marketing activities.

Although most beginners have until now found a first job within a month of graduation from college, this search period is likely to become increasingly longer, according to the association.

Young engineers risk taking three years to find a first job. Higher specialisation by French computer and electronic companies is emphasising the need for engineers with long experience.

The biggest shortage, says the association, is among engineers working in power electronics. Half the jobs advertised cannot be filled, the association says, because the colleges are not turning out specialists in this field.

Recruitment problems are also reported by firms seeking opto-electronic engineers.

Schools can run exams with help of free software

by John Riley

FREE software is to help over 500 schools administer their O and A level exams this year.

The software, designed and written by the University of Oxford Delegacy of Local Examinations, allows schools to enter details of examinees and the exams they are taking on floppy disc via their micros. The floppy discs are then sent to the examining boards HQ and read into its CTL 8046 computer.

Everybody stands to gain from the arrangement. If schools take part, each candidate gets a 25% reduction in exams fees, schools save on administration and do not need to calculate exam fees, and the examining board saves on clerical work involved in batching and checking entry forms.

The package, written in Basic, is tailor-made for each of the main micros currently in use in schools, including Acorn's BBC Micro, Research Machines' 380Z, and Commodore and Apple machines.

"It encourages schools to use the micros they've got," said Paul Humphreys, deputy administrative officer to the board. "We have written the software in Basic, so that it can be used for teaching as well as administrative purposes."

A pilot scheme was first run with three schools in the autumn of 1982. Over 500 schools have now asked to take part, according to Humphreys.

PICK . . . *"The aim is to de-mystify using the computer."*

Brakes come off Pick in Europe

by Claire Gooding

THE brakes are coming off the Pick operating system in Europe, now that Pick Systems has declared an open market. The restrictive licensing agreement between Pick System and French manufacturer Intertechnique is not due to come to an end until August 1984, but Pick has already thrown open the arena for other manufacturers.

Dick Pick, author of the multi-user system, revealed in London last week that from December 1 the French licensee would have to sell against US manufacturers.

"Pick Systems has given up a portion of its royalties to enable its current licensees to go into the European market. By the same token, Intertechnique is now free to sell its systems to the world."

The contract with Intertechnique has meant that sales of the Pick operating system have been severely restricted in Europe. In France only buyers of the Intertechnique Multi-6 have had access to Pick's increasingly popular system, and Intertechnique did not take advantage of its position to push the Pick system into other European countries.

The rush of new low-cost systems using Pick's OS and its inbuilt relational database has fanned the flames of Pick enthusiasm to the degree that US manufacturers, such as General Automation, Ultimate, ADDS and Pertec, have been clamouring for their share of the European market.

Richard Jowett, managing director of Sheffield-based EDP, confirmed that he had been tipped off as UK distributor for ADDS Mentor. "We are poised to move into Europe and have already been talking to dealers in France. There's a huge market there and we're ready for it."

The prevailing opinion among suppliers of Pick-based systems is that Intertechnique has "sat on" the system, when it should have made it available on other kit. Rumours flew around Comdex Europe that Pick had written to suppliers telling them to gear up for sales in Europe, and not be too concerned about treading on Intertechnique's toes.

Pick denied that there was any bad feeling between the companies.

Intertechnique director Edward Marchegaie's only comment was that the company was negotiating a new contract with Pick.

The whole system has been restructured so that it can support other operating systems, such as Unix, as a subset of the Pick software. There are also improvements in user interface.

"The whole aim is to de-mystify using the computer for end users", said Pick. "To my way of thinking the next step is voice recognition."

■ Win £1,500 in Pick competition — page 25

The first matrix Printer at a truly micro Price.

£199.

Now you can have a ruggedly built, handsomely styled, highly versatile printer with a performance as impressive as its price.

The new WM80 is an 80 CPS dot matrix printer which interfaces with most popular micro and personal computers. It comes direct from Walters Microsystems International at the unprecedented price of £199 + delivery + VAT by security courier.

Impressive performance

The WM80 is bi-directional and logic seeking. It prints normal and italic, upper and lower case alpha-numeric characters at 80 columns per line, compressed characters at 142 columns, double width, plus symbols and semi-graphics.

Programmable functions

The standard interface is Centronics parallel, RS-232C (SERIAL) is available as an optional extra. Programmable functions include variable margins and line spacing, horizontal and vertical tabulation, and 7 international language character sets. In total, it offers a 228 ASCII character set and has self-test facilities.

Major control codes include NUL, buzzer, backspace, line feed, horizontal and vertical tabulation, paper advance, carriage return, shift in, shift out.

Paper transport is by adjustable sprocket feed or friction. It uses fanfold paper, from 4" to 10" wide, printing up to three clear copies from an easily changed cartridge ribbon. Life expectancy of the print head is approximately 30 million characters.

Ordering your WM80

The WM80 can be ordered by 'phone on 0494-32751; or by sending this coupon to: Walters Microsystems International, 'Matrix House', Lincoln Road, Cressex Industrial Estate, High Wycombe, Bucks HP12 3RD. Despatch is normally within 7 days by security courier, but please allow 28 days for delivery. Alternatively, you can collect your WM80 in person from Monday to Friday, 9.30 – 5.00, Saturday 9.30 to 12.30.

Specifications of the new Walters WM80

Printing method: Impact dot matrix.
Printing format: Alpha-numeric: 7 x 8 in 8 x 9 dot matrix field. Semi-graphic (character graphic): 7 x 8 dot matrix. Bit image graphic: Vertical 8 dots parallel, horizontal 640 dots serial/line.
Character size: 2.1mm w x 2.4mm h/7 x 8 dot matrix.
Character set: 228 ASCII characters. Normal and italic alpha-numeric fonts, symbols and semi-graphics.
Printing speed: 80 CPS, 640 dots/line per second.
Printing direction: Normal: Bidirectional, logic seeking. Superscript and bit image graphics: Unidirectional, left to right.
Dot graphics density: Normal: 640 dots/190.5mm line horizontal. Compressed characters: 1,280 dots/190mm line horizontal.
Line spacing: Normal: 4.23mm. Programmable in increments of 0.35mm and 0.118mm.
Columns/lines: Normal size: 80 columns. Double width: 40 columns. Compressed print: 142 columns. Compressed/double width: 71 columns. The above can be mixed in a line.
Paper feed: Adjustable sprocket feed and friction feed.
Paper type: Fanfold. Single sheet thickness: 0.05mm to 0.25mm.
Paper width: 101.6mm to 254mm.
Number of copies: Original plus 3 copies by normal thickness paper. (Max 0.25mm. Total thickness of 4 ply).
MTEB: 5 million lines (excluding print head life).
Dimensions: 377mm w x 295mm d x 125mm h, incl. sprocket cover.
Weight: 5.3Kg approx.
Power requirement: 240 v ac.
Data transfer rate: 4,000 CPS max.
Synchronization: By external supplied STROBE pulses.
Handshaking: By ACKNLG or BUSY signals.

The Walters Warranty

The new WM80 is supplied direct from Walters Microsystems International, the company who makes the dot matrix printer for the Department of Trade and Industry's Micros in Schools Scheme.

Under the Walters guarantee, all warranty work is carried out in our factory, normally within 48 hours of receipt of the machine at our service reception.

80 col, 80 cps, friction/tractor feed.

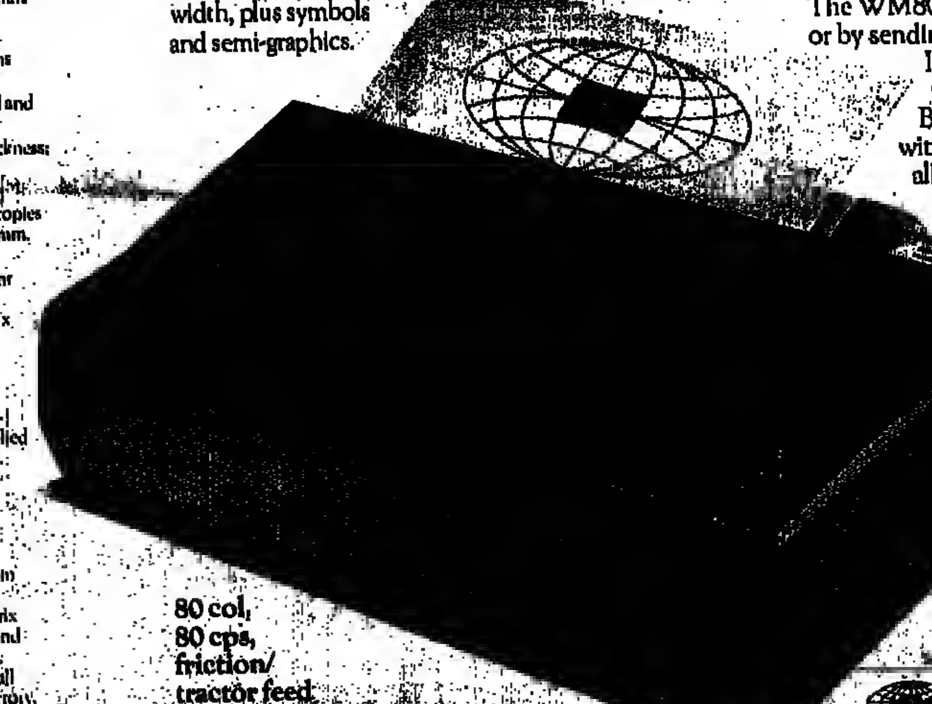
To: Walters Microsystems International Limited, Matrix House, Lincoln Road, Cressex Industrial Estate, High Wycombe, Bucks HP12 3RD.

Please send me ___ WM80 printers at £199 + £10 delivery + VAT = £240.35 each

Name / Address / Postcode / Telephone

Tick box for details of optional serial interface.

WALTERS MICROSYSTEMS INTERNATIONAL



MICRO NEWS

WARD . . . "You always have to do something better."

UK firm bids to break US universal grip

by Caroline Burgess

A SMALL British company, Sirius Microtech (SML), is aiming to break into the universal microprocessor development system market – todate dominated by the US – with the launch of its new product Polestar.

Priced between £5,000 and £10,000 the system is claimed to be the first British universal system at the price of one dedicated to a particular microprocessor family. SML is also claiming that it will be able to cope with any new processor product within two to three months of its launch.

SML's managing director, Rod Perry, said: "With our price and performance, we are planning to bite not only into the universal microprocessor development system market but to capture a substantial share of the market currently held by dedicated equipment."

Initially, Polestar will support the 68000, 8086, Z80 and 6800. However, next year it should have been enhanced to cover the 8085, 6502, 16000, 6801/03, 8048, 8051 and 6809. It runs CP/M operating software and several high-level languages including Pascal.

Only about 25% of the development system market is taken by universal systems. According to SML's technical director, Mike Totham, this is due to the high price of systems now available costing about £20,000. He explained the concept behind Polestar as one of flexibility, allowing users to start with a small investment and gradually expand with their needs.

SML's ability to produce a low-cost product was credited by Totham to the company's small size. "This has meant low overheads. The systems available up to now have been over-priced," he commented.

The company was formed two years ago to exploit research and development undertaken at Bath University. In July 1983, it launched its first product, the Darkstar – a 68000 Unix-based system.

Polestar was initially developed at the university and then enhanced by SML over the last 11 months. SML are hoping to sell between 50 and 100 systems during its first year.

"We are at the moment talking to a major distributor," said Totham, "and we hope to make an announcement soon. But, the educational market we will address ourselves."

Intelligence close to building model

by Rob Parry

MICRO software house and system dealer Intelligence UK has added a faster processor board for the IBM-PC to its stable. PC Express, from Intelligence Research – which is 65% owned by Intelligence UK – carries an 8086 processor memory for the IBM-PC, the nearest Intelligence has yet got to building its own computer.

The board was designed by Gerry O'Prey, who owns the rest of Intelligence Research. He believes it to be the first plug-in board to give the 8086's true 16-bit power to the IBM-PC, built around the chip's external eight-bit brother, the 8088.

A version for the Sirius is on the way soon.

Already, the PC Express has been snapped up for US distribution by American manufacturer Titan Technologies, which will build it under licence. This deal alone is worth around $750,000 and Intelligence UK managing director Ashley Ward reckons royalties from the US could bring in seven figure sums.

But Intelligence is not sitting back and waiting for the cash to roll in from PC Express. "I reckon it has a year of life," Ward said. "You always have to do something better – more powerful, more memory, faster, bigger."

The next step will be to move up the Intel processor scale to the 286. "We will release that when the market wants it – and we'll have it ready well before," boasted Ward.

Hawke markets DEC and HP

by Caroline Burgess

INDUSTRIAL systems distributor Hawke Electronics has expanded into the personal computer field, marketing machines from Digital and Hewlett-Packard.

The move was described by Hawke's managing director, Steve Kearns, as a natural progression for the company after it had established itself in the minicomputer field.

"With our experience in handling computer sales on the commercial and industrial systems front with Digital Equipment, we felt it to be a natural development to pursue business in the personal computer market," said Kearns.

However, Kearns said that the two markets needed "differing methods of sales". "With minis you are really just supplying the hardware, with personal computers you are selling a complete solution – the hardware and the software."

Hawke has established a separate unit to deal with the new market and taken on extra sales staff at its base in Sunbury-on-Thames, Middlesex. The DEC franchise covers the area of the south of England, including Staines, Guildford and south west London. The Hewlett-Packard franchise spans the whole country.

Micros supplied by Hawke include DEC's Rainbow 100, DECmate II and Professional 350, Hewlett Packard's 9816 and the new Magic 150.

It will market all DEC third party approved software and a range of peripherals.

According to Kearns, Hawke hopes to sell about 200 units next year to the professional market. A local press launch is planned for November with the main advertising campaign starting in January.

Harris shows six products in Paris

by Donald Kennett

HARRIS used last week's Paris Components Show to launch an internationally available remote computer-aided design service for gate arrays and five new integrated circuits.

The CAD service, called Agate (Accessibility to Gate Arrays through Technology and Engineering), has been set up by Harris's French partner Matra Harris Semiconducteur at its head office in Nantes.

Based on a pair of Digital Equipment VAX 11/780s, it has computer-aided engineering workstations available for customers' use in Nantes. Permanent links are being installed in Harris offices in the UK, the US, West Germany, Scandinavia, Italy and elsewhere in France, where remote CAD centres are being opened.

Harris vice president for European semiconductor operations Ralph Kaplan said: "Convenience, a much shorter design cycle, and local training and support will be principle advantages of the new service."

The company is also selling and renting CAE workstations for customers' own premises.

"Such is our confidence in the efficiency of the system and the breadth of our new gate array product range, that we are offering a free feasibility study service at the regional centres," Kaplan added.

The integrated circuits (ICs) launched in Paris were the company's first Sofidec (speech digitising codec and filter combined on a single chip), a second-sourced 8088 eight-bit microprocessor, a 250-gate CMOS gate array, and two CMOS 16Kbit static RAMs.

Fortune links into IBM mainframe

by Claire Gooding

MICRO manufacturer Fortune is hedging its bets by linking its Unix-based machines into IBM mainframes. The link is to be supplied free to Fortune users, who will be able to tap in to IBM machines running the MVS operating system.

The link was demonstrated last week by Datascope Micro Systems, Fortune's newest UK distributor, which linked a Fortune terminal at *Computer Weekly*'s Compex exhibition in Olympia with Datasolve's mainframe in Sunbury.

"The real value is that this link enables Fortune to become part of an integrated DP set-up," said John Robinson, managing director of Datascope.

ROBINSON . . . "First to run Fortune as cluster."

"It means that DP department can use the same machine for programming development and distributed end-user applications."

Datascope is the first user to beta-test the link for Fortune. The link gives access to any part of the mainframe and runs its programs locally. It is also possible to swap between MVS and the software tools provided under Unix, Fortune's native operating system.

"We are the first people to run Fortune as a multiprocessor cluster," said Robinson. "It's the kind of move which could be a huge advantage to large companies. It should make them take the small business machine seriously."

Scicon reaches farmyard

by Claire Gooding

MICRO to mainframe links have reached the farmyard with a new version of Scicon's system for farmers and feed compounders.

The Micro Feed system is an implementation of Scicon's successful Mini Feed formula package which runs on DEC machines. Scicon is linking with BP Nutrition UK to market the system, which uses complex mathematical formulae to work out animal feeds.

The Micro Feed system runs on the DEC Professional 350 micro, and includes all the features of its forerunner to solve problems of animal feed formulation.

The system matches the nutritional requirements of cows, pigs and other stock with the ingredients available, their quality, and price.

The system will be particularly useful in micro form to feed compounders who need distributed rather than centralised systems.

Orion launches speech recognition device

by Caroline Burgess

BRIGHTON-based Orion Data is taking first steps into the home computer market with a £50 speech recognition device.

Orion's main activity is open computer security, with banks its main customers. The move into the home market is an attempt to strengthen its sales and marketing side.

"It was a commercial decision," said Alistair Bremner, Orion's marketing manager. "We are very strong on the technical side and are doing work in the speech recognition field, but our commercial side needed strengthening."

The speech recognition product, Micro Command, has been designed and developed by Orion.

COMPANY NEWS

Shares hit as C&W profit soars to £80m at half-time

THERE is little justice in this world. Last week Cable & Wireless reported half-time profits up 16% at £80 million, on turnover up 19% at £213 million – and its shares fell immediately by 20 pence to 293p.

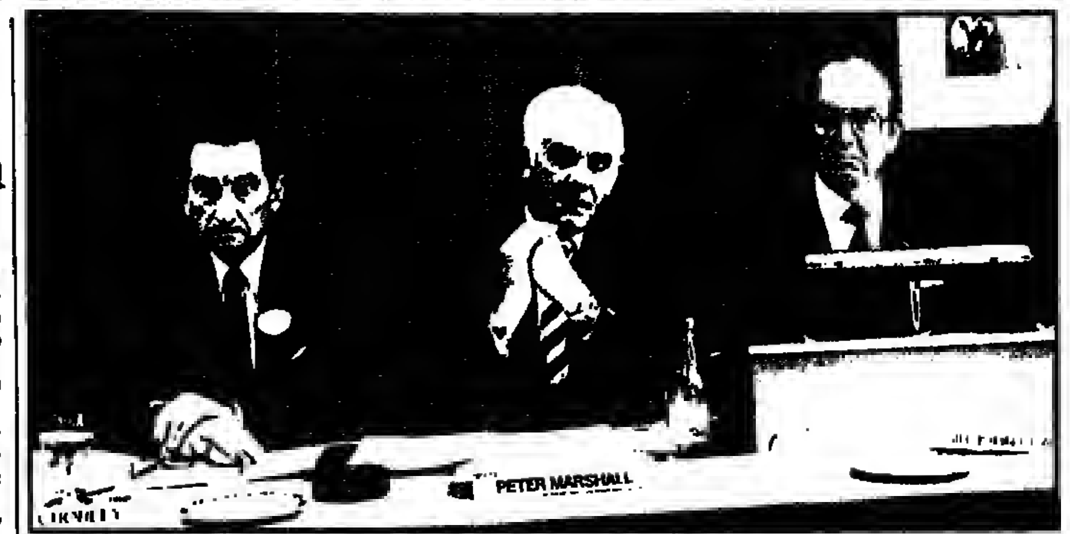
C&W paid the penalty for allowing analysts to pitch their expectations too high – some were looking for nearer £90 million. Those same analysts are now cutting forecasts for the full year. Some had looked for £200 million profits, against £157 million last year, and will now settle for nearer £175m to £180m.

But C&W has more to worry about. In October the government sold 50.1% of the company. It is reported to be about to sell a further 100 million shares, half of its remaining holding. In effect the City's reaction to these C&W interim figures knocked £45 million off the government's stake, and timing of the sell-off may change.

Analysts are also nervous about the company's involvement in Hong Kong and Mercury.

Last March C&W took a 35% stake in Hong Kong Telephone Co for around £140 million. In an attempt to calm fears about the wisdom of that investment, finance director Ernest Potter commented: "When we took the stake . . . we took account of the lease running out in the New Territories."

Closer to home there is renewed speculation that when Barclays Merchant Bank eventually sells its 20% stake in Mercury, the private telecommunications business, the shares will be split between the other two share holders, BP and Cable & Wireless. This seems to be the preferred route because few companies are likely to be capable of, or interested in, supporting Mercury through the decade with investment around £1 billion.



CLARK (right) . . . "We never like to lose a senior executive." With him are fellow Plessey directors Frank Chorley (left) and Peter Marshall.

Plessey hoists its profits to £66m

PLESSEY has turned in more than respectable interim figures.

In the half-year ended September 30, pre-tax profits were £80.9 million against £66.9 million last year. Turnover increased 29% to £583.2 million and operating profit – that is profit before investment income – was ahead 23.5% at £66 million.

Like GEC, Plessey is awash with cash. Reserves have risen from £271.6 million to £290 million during the six months.

Asked if Plessey was ready to spend some of it in acquisition, chairman Sir John Clark commented: "No, I hope it gets bigger. It is easy to spend money unwisely . . . when there is a proper place for it to go, there will it go."

Within the group, telecommunications saw turnover up 28% at £267.5 million. But profit was flat at £31.3 million an increase of a mere 1.5%. These numbers are compromised by the Stromberg-Carlson Corp in the US which was acquired in October 1982. Although the operation contributed sales of £49.7 million it also made an operating loss of £3.2 million.

Plessey has still to find a replacement for Des Pitcher, who resigned as managing director of Plessey Telecommunications and Office Automation at the beginning of the month.

Clark said: "We never like to lose a senior executive. We are taking the matter seriously, but there will be no precipitate decision."

In the rest of the company, Electronic Systems saw profit up 55% at £19 million on turnover up 47.3% at £197.7 million. Aerospace and Engineering eliminated losses in the US and increased profit by 37.7% to £7.5 million. Microelectronics and Components profits were ahead 47% at £5.4 million while Computer Peripherals reduced a loss of £1.7 million in 1982 to £0.2 million.

The company refused to make projections for the second half of the year.

Overshadowing any Plessey announcement is System X. The company expects to learn this week its fate in the small but prestigious tender to refurbish Hull's telephone exchange, where it is competing with Northern Telecom, AT&T and ITT.

This is an uncertain time for the UK electronics sector and Plessey shares fell 5p on news of its results.

Industry warned of stagnation by mid-80s

BRITAIN's electronics industry may not be the saviour of the national economy, according to a pessimistic study by Cambridge Econometrics.

The group warns that the electronic engineering industry, which includes computers, telecommunications and consumer electronics, will stagnate by the middle of the decade.

While it expects such areas as telecomms, fuelled by military spending, to prosper, its overall conclusion is that "the contribution from the sector may not be as large as hoped".

Although it is predicting that output will grow by 1.9% a year by the late '80s, it expects little growth in the next few years. And while it forecasts an annual growth in productivity of 4%, this will be at the expense of jobs.

Cambridge Econometrics was set up in 1978 at the behest of the Social Sciences Research Council to produce forecasts for government and industrial clients using an economic growth model.

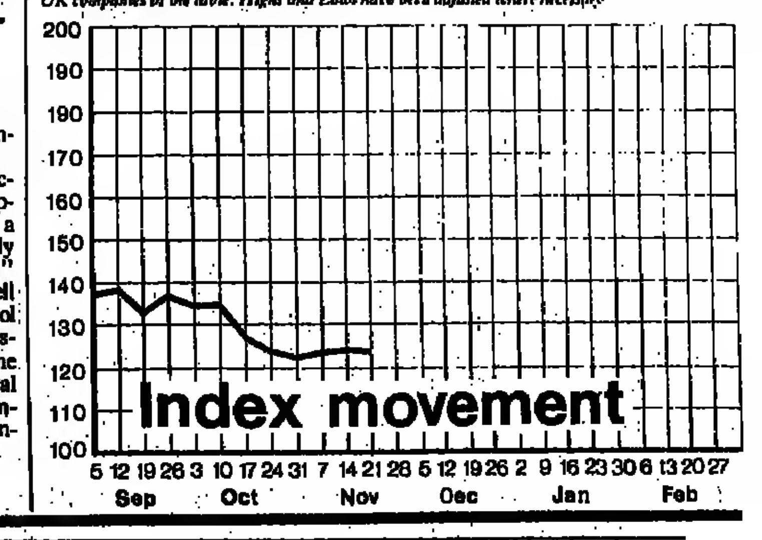
SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

Date 18/11 83 Index 123.66 Change 0.46

Pence 1983 High	Low	London Stock Exchange Stock	Pence Price	Chge	$ 1983 High	Low	US Stock	$ Price	Chge
320	277	Abingworth (10p)	307	16	29	15½	Amdahl	19½	1¼
545	240	ACT (App Comp) (25p)	465	-60	60	19½	Apple Inc	20¾	1¼
360	245	Atlantic Comp (10p)	340	-48	50	34½	Auto Data Pro	35¼	¼
68	41	B Buy Rent (25p)	68	1	51¾	41¼	Burroughs	47	½
197	124	Chubb (20p)	146	-2	16	6¼	Comp Auto	7	½
178	118	Cole Group (25p)	142	3	23	14½	Comp Sciences	17½	1
410	152	CASE (20p)	405	5	14¼	9½	Comshare	11	[illegible]
250	200	DPCE (5p)	248	10	63½	38¼	Control Data	43½	1½
263	173	Datastream (5p)	180		61¼	27½	Cray Research	53½	[illegible]
665	570	De La Rue (25p)	645	-2	81¼	41	Data General	73½	[illegible]
378	284	Estel (25p)	360	3	27¾	18½	Datapoint	21½	[illegible]
689	411	Ferranti (50p)	614	5	127¾	87½	Digital Equip	70¼	[illegible]
248	103	GEC (5p)	136	6	41¼	22½	Elec Data Sys	41¼	1
82	54	ICL (25p)	58	2	15¼	5½	Gen Automation	11½	[illegible]
63	41	Kalamazoo (10p)	51	3	47¾	19½	Gould	30½	[illegible]
375	243	Kode Int (25p)	247	-6	51	33½	Harris	38½	[illegible]
382	226	Logica (10p)	262	-17	48	34½	Hewlett Packard	40	5¼
525	330	Memec (10p)	765	-3	130¾	85	Honeywell	120½	2¼
190	130	Muirhead (25p)	167	16	44¼	20½	Intel	42½	2½
690	458	N market (1981) (50 067)	672	33	133¾	95½	IBM	123½	2½
2700	967	Norsk Data	3262	-88	71¼	54½	Litton Ind	61½	
320	160	Office & Elect (25p)	180	16	12¼	12¼	MDS (Mohawk Di)	11¼	
1238	710	Philips Lamp (F1 10)	807	37	32¾	19	MSA (Mgmnt Sci)	31½	[illegible]
286	178	Plessey (25p)	209	13	18½	9½	Mngmnt Assist	12	[illegible]
80	18	Quest Auto (10p)	27	-5	16	1½	Modular	8	[illegible]
293	184	Racal Elect (25p)	189	9	148	84½	Motorola	140½	2¾
320	236	Sias Comp (10p)	284	-35	57	35½	National Semi	53½	[illegible]
510	275	Systems Des (10p)	500	-15	133¾	87½	NCR	132½	3½
322	214	Telemetrix (5p)	272	-14	39½	24	Perkin Elmer	30½	1½
632	418	Thorn-EMI (25p)	632	-3	29½	12½	Prime	16½	[illegible]
187	130	UC&T (50p)	122		55¾	44	Raytheon	46	[illegible]
167	130	United Leasing (30p)	162		27½	25¼	Signal	31	1½
					47	33½	Sperry Comp	44¼	[illegible]
					24½	15	Storage Tech	16	
		Unlisted Securities			26½	24½	Tandem	34¼	[illegible]
122	104	Acorn (1p)	122	-3	67¼	35½	Tandy	39½	2½
128	75	Bus Comp (10p)	20		171	108¼	Texas Inst	127½	7½
130	87	CPU (5p)	120	-2	76½	18½	Tymshare	26½	4½
180	115	Cifer (10p)	120		46¼	30½	Wang Lab B	34½	[illegible]
690	145	Consult (C&F) (10p)	690	-130	17	9½	Wyly	10	
326	187	Feedback (10p)	226	-8					
314	125	Imm Bus Sys (10p)	180	7					
91	84	Imlec (10p)	84						
220	168	Int'Europe Tech (20p)	220	-12					
64	27	JSD (5p)	34						
92	70	M.M.T (5p)	[illegible]	[illegible]					
300	153	Memory Comp (R10p)	[illegible]	[illegible]					
385	265	Micro Bus (1p)	[illegible]	[illegible]					
640	[illegible]	Micro Focus (10p)	[illegible]	[illegible]					
448	310	Microgen (10p)	[illegible]	[illegible]					
227	136	Miles 33 (10p)	[illegible]	[illegible]					
64	[illegible]	[illegible]	[illegible]	[illegible]					
240	[illegible]	NMW (10p)	[illegible]	[illegible]					
215	[illegible]	Real Time (5p)	[illegible]	[illegible]					
135	[illegible]	Rolls & Nolan (10p)	[illegible]	[illegible]					
197	[illegible]	[illegible]	[illegible]	[illegible]					
80	[illegible]	Trident Comp (10p)	[illegible]	[illegible]					
108	[illegible]	[illegible]	[illegible]	[illegible]					

The table shows the closing prices in London Tuesday. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.



Venture fund injects £660,000 in micro firm

A SMALL company with a posh address in clubland has picked up £660,000 worth of venture capital backing from Electra Risk Capital (Eric).

Planning Consultancy Limited based in Pall Mall, is a two-year-old company selling IBM, ACT and Apple microcomputers. Eric now holds 23.5% of the company, managing director Graham Summers 52%, and John Gutkin, another director, the balance.

Like many young companies, PCL is growing at a spectacular rate. In fiscal '83 profits were ahead 400% at around £200,000 on turnover up 253% at £2.6 million.

Summers is looking for £7 million sales this year. He commented: "In one month this year we have exceeded our total first year turnover."

Although it had become obvious to Summers that this expansion demanded a stronger balance sheet he claims that "Electra approached us".

Eric will get a return on its investment within two years when PCL is floated off on the Unlisted Securities Market. Summers is being courted by stockbrokers at the moment.

Just the £800,000 ticket for the box office

by Philip Hunter

THERE are plenty of places to go for venture capital, but if you want more than £500,000 you have to go to someone big.

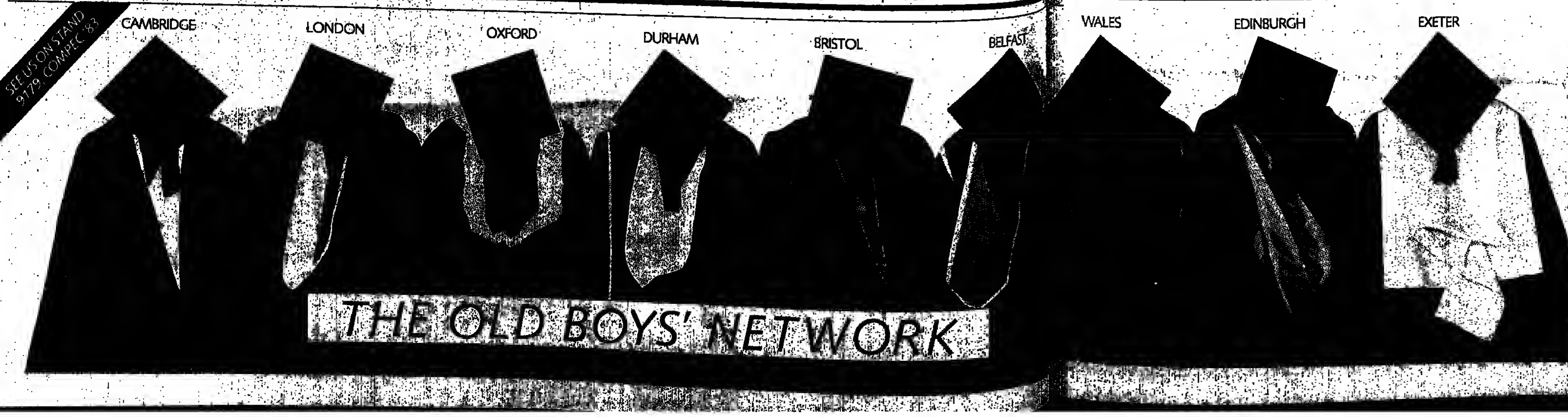
Ticketmaster UK, which markets computerised box office systems, went to ICFC, and hauled in £810,000, of which £570,000 was a loan, the remainder equity finance.

Ticketmaster has installed its system in eight London theatre venues, and one ticket agent. The main competitor is Space Time Systems, which has 40 venues under its belt.

But Ticketmaster finance director Nigel Grant says the two approaches are different. "We offer a network system, while they supply an individual computer system."

Space Time and other rivals sell standalone systems to individual venues, while Ticketmaster installs terminals and printers at the venue, all linked to two central PDP-11 computers at the company's headquarters next to London's Albery Theatre.

Company News is compiled by Dave Madden



The Universities had a problem.
They had difficulty communicating internally, let alone with one another.
They needed to network their computer systems and terminals to provide access to on-site hosts.
And also to the off-site facilities of the integrated academic network.
The Camtec JNT-PAD did just that.
As a PAD it links VDUs, printers and micros into X25 based local area networks.
As a reverse-PAD it provides port contention and X25 access to non-X25 hosts.
As an X25 switch it links together PAD's, on-site and off-site X25 hosts.
As British Telecom approved for connection to their Packet Switch network it provides the connection to the Public Data Network.
The JNT-PAD is only one of a range of products within the X25 and LAN fields manufactured in the UK by Camtec.
Call us on 0533 537534 and find out how to get on the Old Boys Network.

To: Camtec Electronics Limited, Melton Street, Leicester LE1 3NA.
Please send me full specifications for the JNT-PAD.
Name
Title
Company
Address

CAMTEC
Joining networks together

ICL plugs gap in its armoury

ICL is taking on a new applications generator for its small DRS-20 range of business computers.

Called Sourcewriter, it is the brainchild of Martin Anderson, formerly with Adabas and Logica. Some of the development work on the system was done while he was still at Logica, which now gets a royalty for it.

Anderson has set up on his own at West Byfleet, Surrey, with five others, under the name of Softwright. Sourcewriter is a generator written in Cobol and generating Cobol code, running on ICL and IBM personal machines and other micros supporting the CP/M, MP/M and MS-DOS operating systems.

ICL has now begun distributing it worldwide under its own label, trying to stop a gap in its software armoury. It is also being marketed by Micro Focus.

Anderson claims the tool enables systems to be developed for as little as £5,000, compared to perhaps £60,000 for a conventional software approach.

"People have talked of clearing the applications backlog. We think Sourcewriter should help to clear the systems analysis backlog as well."

The concept behind the system is that analysts can quickly create specifications, take them to the end-user for discussion, and go back and modify them afterwards, said Anderson.

ANDERSON . . . "Should help to clear the systems analysis backlog."

Ignorance holds expert systems

by Claire Gooding

BIGGEST problem for Nexus, one of the first commercial expert systems to be launched in the UK, could be public ignorance. Helix Products and Marketing put its Financial Advisor, based on the Nexus expert system, on show last week at the Accountants' Exhibition at the Barbican in London.

The system is aimed at businessmen and professional users, but, reports Helix managing director Dr Laurence Shafe, they may not be ready for such advanced technology.

"There are a lot of obvious benefits, but the public needs to be made more aware of what an expert system can do before the business world understands," he commented. "There was a great deal of interest but we had a lot of explaining to do to the accountants and business people who saw the system, about the benefits it offers.

"The feeling we got was that the average accountant was aware of the fifth generation of computing as something covered in the Press, but didn't yet see it as relevant to him – certainly not something associated with his job."

The Financial Advisor is one of a series of Nexus-based systems running on the IBM Personal Computer which Helix is putting on sale in the UK. Among those already developed are Financial Advisor for business management and the diagnosis of financial problems, Investment Advisor for investment analysis, and Car Adviser for people deciding how to buy a car, and which to buy.

Other areas targeted for such automatic advice include personnel, loan administration, tax, staff allocation, and company tax.

Helix has spent about £500,000 on the development and marketing of the expert systems products, having received one-third of the funding from the NCC Software Products Scheme. Dr Shafe has been working with interactive knowledge-based systems for 11 years, and is turning his expertise to commercial use by tapping Helix's own financial and management knowledge.

"Nexus itself is at the centre of all the systems," he explained. "It's a matter of what knowledge base is 'wrapped around' the brain."

The Financial Advisor, for example, can solve specific problems such as cash liquidity. It considers all the usual solutions such as an increased overdraft, long term borrowing, selling assets, leaseback, credit control, and other factors.

"The system is easy to use and explains its reasoning," said Shafe. "It is not just a black box which presents a conclusion and says Do this. Expert systems would never be used if they did that."

10 Downing Street
Whitehall

Dear Bill,

Welcome to the club. Your letter gave me such pleasure that I slipped it in among the Despatch papers and made sure that M read it too.
The fact that you've shown the wisdom to purchase your own Fortune 32:16 is, in her eyes, a redemption from your multitudinous sins of the past. The effect on her was as dramatic as if she'd suddenly discovered the true wonder of Scotland's golden fluid. She sat bolt upright and made several pronouncements entirely in your praise.

I imagine that each time I wrote to you of the marvels of the little number cruncher, you were thinking "the doddering old wreck's finally going doolally". Well, now you know the truth. The power and versatility of this little wonder is positively invigorating!
Now that you are also about to become a contented user, you too can lay a strong claim to possessing the acumen of youth. Time now to leave the other chaps standing. As far as I can make out, this phenomenon is spreading through our entire generation. Nearly every pal I've got is not only hooked on this DMS Fortune idea, but also getting hooked up on this Ethernet thing.
You may remember in my last letter that I mentioned having placed an order with our favourite vintner Pocock and Pocock. At the time I couldn't help eulogizing about what the Fortune 32:16 could do for their booze business. Well business over there has sharpened up so dramatically that he's just had a crate of champers wheeled round to the front door here, marked for my personal attention.
With Unigom software, and the power of a mini wrapped up in a micro, the Fortune 32:16 has turned Old Pocock into a complete Electronic Manager. He's using it to monitor sales and purchases, control stock, run the payroll, invoice sales, initiate purchases, and even plan longterm finances – although I must say the latter seems a little optimistic in view of his extended acquaintance with Father Time.
At the brewery whose board I recently mentioned that I now sit upon, they appear absolutely delighted that I'm now able to conduct most of my business with them from the office here. They've even provided a 3270 Protocol to hook me up to their mainframe.
Of course, on a personal note the implications for the likes of you and I are enormous. No longer will we have to resort to old-fashioned paper and typewriter hammers to communicate. Ours is a world of Electronic Mail in which we flash messages onto the screen of each other's Fortune 32:16 for a mere five grand. We also have the benefits of desk-top calculation, electronic diary and memo, phone lists, document handling, etc., etc. Since this is the last time we shall communicate by the old method, I enclose a further coupon from the clever chappies at DMS for you to pass on to another heady member of the Business Community you may know of. I shall be watching my silver screen avidly for your first instant message.

Denis

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Record deal for generator

RECORDING firm Island Records is using an applications generator as the speediest way of tackling massive accounts and royalties.

The system, costing £300,000, will be used to link Island offices in London, New York and Los Angeles, providing the company with management information and complex accounting to cope with its artists' worldwide royalty payments.

Island has already installed a Digital Equipment Vax 11/750 mainframe in its Hammersmith, London, headquarters. The applications generator chosen for the job is RIMS/MPG from US firm Information and Research Systems, one of the few development tools which works across the DEC range, producing amendable source code in several languages.

The online system is being written by City Consultants of Barnes, in co-operation with ISR's exclusive UK distributor Delfont Computing of Byfleet. Managing director of City Consultants, Roland Morris, hopes to compete the system in nine months, well below the original estimate of two years.

The DEC hardware was chosen partly because of RIMS' availability, since the deadlines on the project are tight. The programs produced by the generator can be amended by hand, or, at a higher level, be changed by users themselves by way of parameters to produce their own graphics and report programs.

"As well as providing the full gamut of accounts and project control software, we're writing some very complex applications such as worldwide consolidation," explained principal consultant Tim Twinam of City Consultants. "It will enable the people at Island to get instant feedback on which records by particular artists are getting good chart sales, in various places in the world."

Twinam estimates that the networked system will be complete by the end of the year, even with only two people working on it. "Using RIMS we cut down from the original estimate of eight man years to two man years," he said, "and we're working fast."

ISR has recently upgraded RIMS to make the report generation easier to use.

Commodore men go into educational publishing

by Claire Gooding

ONE of Commodore's top marketing people has formed his own software marketing company to publish educational software. Andrew Goltz, formerly head of the Commodore Supply company, has set up Logic 3 "to bring professionalism to home computer software publishing".

Goltz is joined by print and packaging man Tony Toller, who founded Uniprint, and Professor of Computer Studies at Strathclyde University, Andrew Colin, whose teaching methods on Basic were packaged for Commodore machines and sold 250,000 copies.

Commodore special projects manager Nick Green is also involved in the company as an investor and non-executive director. He is not leaving Commodore but will act as a consultant.

Logic 3 is aiming for the home computer market already embraced by high street stores like W. H. Smith. Although the first products centre is on Basic, Goltz sees Logo as an important development in educational software. He is discussing a deal with Krell Software Corp in the US which would bring the Language to the UK at low cost, complete with training manual.

"Logo will be as historically important as Basic," said Goltz.

Wang signs $500,000 deal

A DEAL with Micro Focus for its Cobol compilers is taking Wang closer to the mainframe environment.

Wang has signed with Micro Focus for £500,000 worth of software, including the Level II Cobol compiler, the Animator and Forms-2 development tools, and the Native Code Generator for converting Level II Cobol code to the Wang Professional's native machine code.

The deal is part of Wang's strategy to bring its office automation products in line with corporate mainframe computing. The use of ANSI standard Cobol will allow DP departments to port applications to Wang micros from the host mainframe.

Software File is compiled by George Black

SAAR . . . Start during the first half of 1984.

BTG keeps selling but Oxford cheers it up

by Dave Madden

THE British Technology Group is to sell its interest in Systems Programming Holdings, in an effort to dispose of its equity holdings.

The Western Broadcasting Company of Vancouver has agreed in principle to acquire the National Enterprise Board's 40% stake in SPH for an undisclosed sum. WBC, whose activities include satellite broadcasting, already had a controlling interest. It bought 60% of the company in 1981.

SPH is the holding company for Systems Programming Ltd, (SPL), the systems and software house which organised this year's SPL Insight fifth generation conference.

Managing director David Thompson says the deal will give fresh impetus to SPL's ambitions in the US market.

"Although we have a company incorporated in New York, we are really just opening up shop. WBC gives us a US infrastructure and high level contacts. They are a powerful committed partner that knows how to do business in the US," he said. SPL will push its banking and financial systems, and its interest in artificial intelligence in the US.

Thompson pointed out that WBC brings huge financial resources to SPL. It recently invested £1.25 million in the company. SPL had a turnover of £10.7 million in 1982.

■ It is a happy day for the British Technology Group when it gets a prompt return on its investment. Oxford Applied Research, (OAR), has given it just that.

Oxford Applied Research has repaid a £50,000 loan, made by the BTG's Oakwood Loan Finance arm, with interest. OAR has also repurchased the BTG's option to acquire 20% of the company.

OAR was established in 1978. It used the BTG grant to fund development of ion beam systems used in semiconductor manufacture and the milling of gallium arsenide. OAR has now licensed the technology to the Oxford Instruments Group.

Brewers come to the rescue of IBM users

by John Riley

THE UK'S second largest brewer, Allied Breweries, this week moved into the computer services business with a disaster recovery centre for IBM users as its first service.

The new company, Allied Advanced Information and Management Systems (Aims), is the commercial arm of Allied's management services division, which had a £10 million turnover within Allied Breweries last year.

Aims offers the use of its 3032 mainframe and ancillary facilities, including accommodation and its own airport to clients.

"We bought a 3083 mainframe and found ourselves with the 3032, plenty of space and expertise which were ideally suited to setting up this service," said Mike Connolly, Aims' sales and marketing director.

"For a flat £40,000 a year we give clients priority use of our 3032 for an agreed number of days, usually 21, in the event of a disaster. That allows them to carry out essential batch-type activities such as payroll, and mitigate the consequential loss."

Newbury to make Maxtor drives in UK

by Dave Madden

NEWBURY Data Recording will sign an agreement this week with Maxtor of Santa Clara, California, to manufacture Maxtor's high-capacity mini-Winchester drives in the UK.

Marketing director Rod Saar says Newbury will start producing the drives at its ex-ICL plant at Winsford, Greater Manchester, during the first half of 1984.

Initially it will make Maxtor's eight-platter, 143 Mbyte, 5¼in drive, but Saar says Newbury intends to take the 310 Mbyte model eventually.

Saar hinted that his company had a sub-5¼in drive in development.

Newbury already has a licence to build 5¼in fixed and removable drives from DMA Systems of Santa Barbara, California, which it sells as the 505. The company hopes to produce 6,000 units in 1984.

Memorex builds the DMA drive there too.

Newbury is doing its best to help the British Technology Group to get rid of some of its 100% holding in the company. It is predicting an obliging £40 million turnover this year, against £28 million last time, and hopes to manage 45% growth in 1984.

Newbury's peripheral business in 1983 splits into sales of £15 million worth of printers, £8.5 million of disc, and £6.5 million of VDUs. Media, services, and maintenance make up the balance.

Saar said the company shipped 15,000 printers during 1983. He is looking for 28,000 units in 1984, which would bring in about £27 million. Newbury is previewing a new 12-needle "near letter-quality" printer, and has an 18-needle machine in development.

Newbury sold 10,000 VDUs of its own manufacture in 1983. Saar expect to shift 14,000 next year, and as many as 30,000 in 1985. The company has a new VDU, the 9500, which will come with 12in, 14in or 15in display and cost less than £400. The machine will lead Newbury's export drive in 1984.

The company has recently introduced a bisync to Ascii protocol converter, the 8274. Microscope provided the software, and the device can handle 14 terminal types at one time.

FT makes its first move into software

by Nuala Moran

THE *Financial Times* moved into the software business last week with the launch of a financial modelling package for 16-bit micros.

The package, called FT Moneywise, was developed by Moneywise Software Limited (MSL), a small independent company set up about a year ago. MSL took the package to the FT because it decided the average reader was the type of user it wished to reach. The two companies have established a joint marketing agreement.

The FT intends to launch other packages and Simon Bisson, of MSL, said: "We will be taking more products to the FT including enhancements to FT Moneywise." He emphasised that although the FT was endorsing the product, it was in no sense badge engineering.

FT Moneywise has been recognised by the National Computing Centre, which has awarded MSL £350,000 through the Department of Trade and Industry's software products scheme grant.

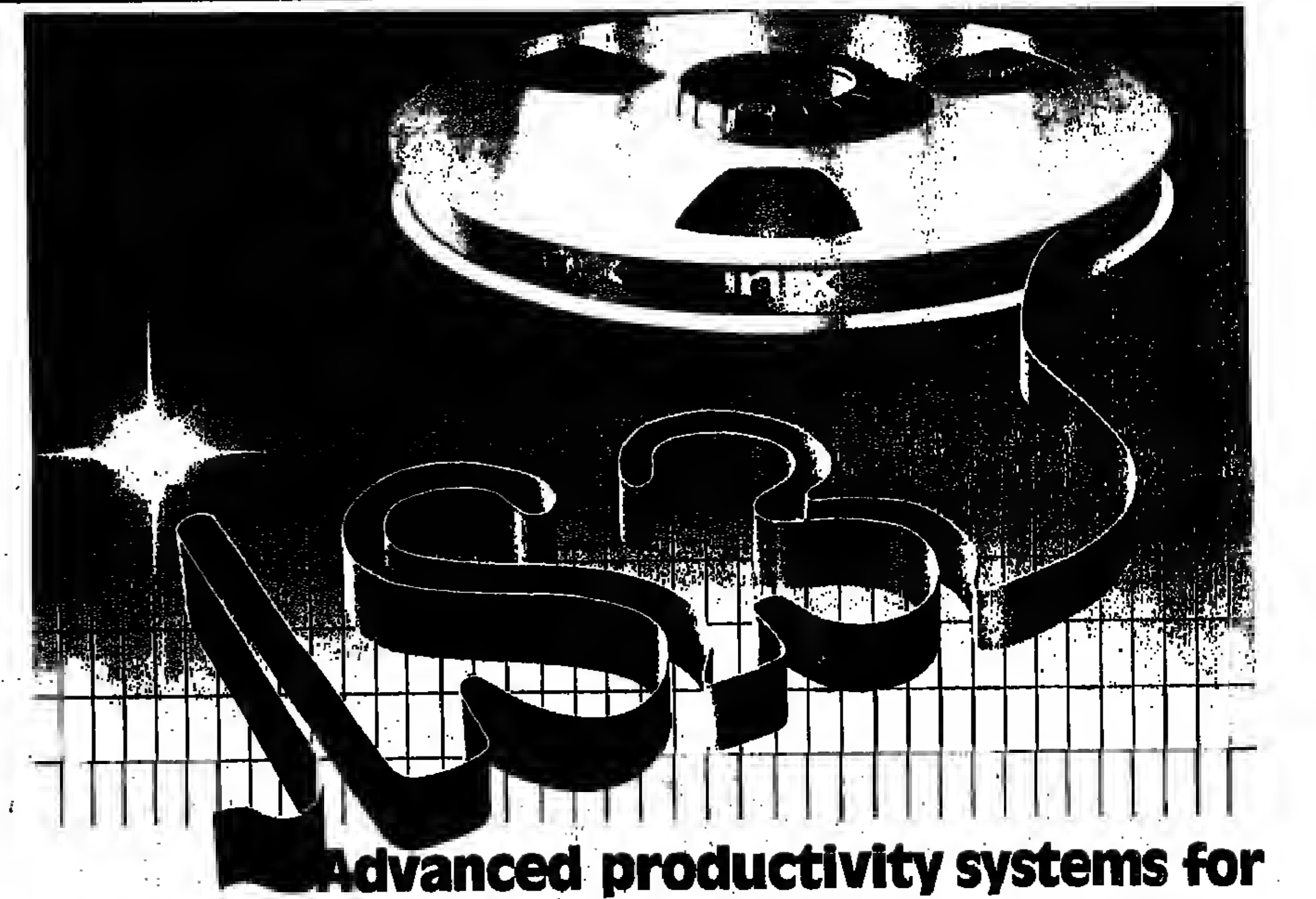
The *Financial Times* claims that FT Moneywise is 10 times faster than competitive products. It will initially be available on the Sirius and the IBM-PC, and there are plans to adapt it to other micros. Bisson said: "We will make it available on all the sellers."

It costs £395 plus VAT.

A dealer network of about 200 will be set up, but sales to major customers will be direct from MSL which will also offer a support service for £145 plus VAT a year. This gives subscribers access to a hotline and enhancements at least twice a year.

Speaking at the launch of FT Moneywise, Joe Rogaly, chief executive of the FT Business Enterprise Group said: "The FT group is in the information business; essentially we are a communications company. We are active in electronic publishing in the form of online information services. This has brought home to us the importance of good software."

Last month the FT announced a tie-up with ITT to establish an electronic business news service, International Financial Intelligence.



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PROFILE

Aussie high-flyer comes good in UK

DIERY . . . "There's so much talent in the UK but it lacks direction."

by John Riley

IAN DIERY, Wang's UK managing director and recently appointed vice-president for Western Europe, is a keen sportsman. He regularly plays wing forward in Richmond Rugby Club's veteran team, picking up the occasional black eye, and also plays a lot of golf and tennis.

The large framed picture of the America Cup-winning yacht Australia II prominently displayed on his office wall at Wang's headquarters in Hounslow leaves no doubt as to his nationality.

Diery arrived in the UK in 1978, having been a high-flyer in Australia. After studying civil engineering he joined a video-taping company, and by the age of 23 was running operations far the State af Victoria.

He started up his own campany in the same line of business, and after selling aut in 1978, travelled to Europe and the UK – "as every Australian does," he quips.

On arriving in the UK, he fixed up interviews with IBM, Xerox and Wang. Wang was the first to interview him and he took a job as salesman on the spot without waiting far the other interviews. He moved up rapidly to become managing director for Wang UK in 1981.

Diery says that he is hugely impressed by the UK. "There is so much talent here, but it lacks direction. The UK has exported sa many standards, such as language, banking techniques, law, governments. The real challenge now is for the UK to averlay technalagy on top of those carriers."

His new appointment will mean a few changes. "I will have less day-to-day involvement in the UK. The UK is the fastest-growing subsidiary, but that doesn't mean the methods used here will work on the continent – one has to be careful and not bulldoze UK methods."

Wang UK has been growing rapidly under Diery and the end of year figures in July showed a 47% increase on the previous year to £50.9 million. The secret of Wang's success is that its word processor products got the Wang name on people's desks.

"Wang separated the word processing and data processing sales efforts, and that tactic ia paying off. We recently sold 120 VS systems to a customer who had previously bought just one Wang word processor," he told me.

It is because of the proven success of that strategy that Diery is pulling out all the stops to get Wang's Professional Computer on desks where they can be integrated into networks.

Diery is not complacent about the shakeout canvulsing the micro market but believes that Wang is "well-insulated".

He also thinks that "other companies have sold too many personal computers at a lass, allowed their inventaries to build up, and hasn't got their manufacturing costs down law enough. There are also a lat of single product companies which are vulnerable and can't get aut of the way when IBM moves."

Diery's recipe for success is that companies need a systems approach. "Firms need their own manufacturing, their own R&D, their own marketing and support, and then they can set up worldwide."

"We are finding that the shakeout is helping us," said Diery. "Our personal computer dealer network is picking up and people are looking more closely at us all the time."

"We are encouraging the dealers into the areas that are not economical for us, particularly with selling standalone personal computers. We give leads to dealers in those areas."

Wang has no intentions of following IBM into the home computer market: "The very law end is like the calculator market," said Diery, "and Wang moved out of the calculator market years ago."

Looking to future developments, Diery says: "I believe that to do well in the DP world you have to break traditiona." He is keeping Wang's own developments close to his chest, but is excited by the Professional Image Computer which waa launched recently in the US, and believes there is a strong future in voice messaging and integration.

"The huge power of the personal computer still needs a structured input and is getting harder for the nan-DP person to use," he says. "The real breakthrough will be when we can put unstructured data in to all the machines we make."

Diery is placing great emphasis an software development: "We naw have 35 to 40 software developers for the personal computer and are getting our act together. Software houses are now coming to us whereas previously we went to them," he adds.

Diery notes with satisfaction that the VS minicomputer has taken off – "we are getting many mure multiple orders now." He does not forget the role that the ward processing side of the company has played in helping obtain them.

"Five years aga, word processors were the Cinderella of the industry," he says. "It is a difficult step for a ward processing company to move into DP or a DP company to move into word processing, and we are proud of our achievement."

PLATFORM

Public has misfounded faith in ads

OVER many years we have become used to consumer product advertising. We expect to be harangued on the telcvision, in the press, on the radio with requests to buy many different brands of washing powders, lagers, margarines, or the like.

Most advertising is for mature products in mature markets. The public really knows that the difference between particular brands of, for exainple, washing powder, is small. They all work acceptably well. The buyer knows how to use the product and approximately how much they cost.

The last two years have seen these same promotional techniques used for a newer – and rather less mature – product. It seems now that there are perhaps more advertisements for personal computers and software in the media – television, newspapers and the radio – than for washing powders and suchlike.

The campaigns have helped to create consumer demand. Sales of personal computers have rocketed – some estimates put growth in the last year at over 100%. Many small businesses, and many more not so small ones, have succumbed to the advertising.

The money has been paid over. The boxes have been delivered and unpacked. The shrinkwrapped packs opened and the diskettes loaded.

It's then that the buyer starts to think that perhaps the advertisement promised rather more than he actually has received. A few months later and many purchasers know what harm a limited system can really du to their business.

Personal computers – and particularly the software which makes them work – are not yet mature products and the market quite definitely is not experienced in choosing what will best meet its requirements.

The differences between products are very great and yet these differences are in no way apparent in the advertisements. Buyers believe that one software package is very much like any other. They all work, of course!

It is also falsely assumed that any of the packages would meet buyers' particular purpoaes.

I believe that the buying public are regarding computer advertisements with the same faith in the product and the companies supplying them as they do for other consumer products. That faith is misfounded. The buyer then pays the price. That price can far outweigh the cost of the system. It can affect his business and it's performance for years to come, sometimes in a quite disastrous manner.

The evidence that the promotion does work, and that the buyer is not quite as expert as we might believe, is all around us. Why else are some of the best selling financial accounting systems for personal computers condemned by so many knowledgeable people as being limited in functions? And so much so that even the smallest business gets frustrated with their lack of functionality after just a few months?

Why is it that buyers enter Hoskyns Business Centres and demand products by name when they are unaware even of the most general features of these products?

Until the PC industry has matured we will have to accept that differences between personal computer products are great. We should also accept that many buyers lack the skills and resources to undertake in-depth evaluations. We must also accept that buyers are susceptible to advertisements and have come to have some level of trust in them.

The industry in turn must:

- raise the standards of its products;
- institute objective and independent measurements to tell buyers about the functionality of products before they make their commitment;
- have a mature, professional and responsible attitude towards the claims made in advertisements for computer products;
- offer the right help and advice to buyers so that future problems can be avoided.

Above all, we must ensure that the multitude of new computer users do not get so disillusioned with the limitations of the products that they condemn computerisation as a whole.

Richard Holway

Richard Holway is marketing director of the Hoskyns Group.

Liveware File by Don

DOWNTIME

Down the salt mines?

FROM time to time everyone suffers from "finger trouble" while out on the old computer frontier, but most of us manage to recover before someone else noticea. A lot of us wuuld be out of a job by now otherwise.

Not so lucky was one unfortunate computer operator at Soviet news agency Tass' headquarters. While pumping out the usual exciting news such aa the cost to Moscow of cleaning the snow off its streets (45 million roubles a year for those of you who must know) this hapless operator put one of the wrong files down the wire.

And a number of bored people manning the printers at the other end of the line – in embassies and newa offices – found themselves reading a rather detailed account of work on an optical memory system being developed for the US military.

But only for about 400 words' worth, for the mistake was noticed and the report cut off in full flood. Tass isn't saying a great deal about where the information came from or where it was really supposed to go but it isn't exactly the diplomatic coup of the year.

And it isn't saying anything at all about any new posting for its duty operator.

It's a tough life being a hack

SOME Miss World hopefuls, including the winner, visited our Compec exhibition last week – but the star of the show was their hunky chaperone (44, 40, 42), who was determined that none of us hacks were going to get near enough to his girls to ask them what they thought about cruise missiles and birth control.

He was reaching for the shoulder holster when a *Computer Weekly* hack dared to ask which countries the ladies were from. He muscled in quickly shouting, "no interviews, no interviews".

And after taking one picture a Sun photographer was told to "knock off" (at least that's what it sounded like).

The contestants were just expected to stand there by a terminal looking pretty. I hope they enjoyed their visit to Compec.

So much for romanticism

THERE was more than a touch of inverted snobbery at last week's Pergamon Infotech conference on the state of the art in information technology.

Many of the company presidents and managing directors invited to speak found themselves unable to resist the opportunity to plug their own companies, and the assembled delegates were treated to slides of garages and attica where successful systems houses began tbeir days.

It practically descended to the "I remember when I was a lad and I founded a company in a shoe box" level.

But they were all outdone by Ian McNaught-Davis, founder of Comshare and presenter of the BBC series *The Computer Programme* and *Making the Most of the Micro*.

He was shamefaced to admit that the one thing that was at a premium in London was garages, and he hadn't been able to find an attic, so Comshare, horror of horrors, first saw the light of day in an office in fashionable Chelsea!

Chad

10 YEARS AGO

FROM COMPUTER WEEKLY OF NOVEMBER 22, 1973: Digital Equipment announced three new versions of the PDP-11 minicomputer to strengthen its position in the highly competitive OEM market . . . Racal showed a versatile new communications buffer – the Comstore – at the Systems 73 exhibition in Munich . . . our very own *Computer Weekly* announced a total circulation of 73,582 – about half today's figure.

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, November 24, 1983

Stop nit-picking over IT money

IS the UK government interested in information technology or not?

This week the Department uf Trade and Industry has stalled over a small £16,800 grant to fund a project designed tu bring university software to market through services firms. The object is to tap the commercially vast amounts of software waiting in universities for suitable market nutlets.

Academics do not have the time or expertise tu package and sell snftware. The project, propused tu the DoTI by the National Computing Centre, wnuld be an incxpensive way of putting services firms in tnuch with s ready snurce nf products.

The scheme, which has been brewing since the start uf the year, has already received tucit governmental approval. Alistair McDonald, head of DoTI's information technology division, said he was happy with the idea. But a decision for the go-ahead has again been postponed.

The university software scheme is not the only one awaiting approval.

There is still no decision on the future of the ExportIT programme. In its first year ExportIT gave UK companies export contracts representing business totalling £10 million. ExportIT was given £250,000 in governmental funding in 1981, and has managed on that since then. The director of the programme reckons with something less than £200,000 it could become self-financing in three years.

The future of ExportIT has been under review since December of last year. It was believed to be near the top of the in-tray after the June election. But the decision making process in the DoTI drags on.

There has been a certain amount of turmoil in the DoTI this year. After the June election Cecil Parkinson was brought in to replace Patrick Jenkin. The trade and industry departmenta were merged. Parkinson's tenure was brought to an abrupt end because of his aocial indiscretiona, and Tebbit was brought in to take the reins.

That being said, the government continues to talk about the importance of high technology and services industries. Fine words, without the seed money which is needed, leave the government open to criticism of shortsightedness.

Other DoTI schemes to foster new technology are also understood to be marking time. It is not clear whether the problem is indecisiveness on the part of ministers, the general restraints of the government'a monetary targets, or the dislike of any projects which might be termed interventionist. Whatever the cause, the effect is apparent. Innovative and inexpensive schemes are being stifled.

DP leaves the closet

THE computer industry is developing a bent for the sensational story. In London last week, Earl Joseph, once chief engineer at Sperry Corp, spoke of brain cells being grafted on to microchips as the logical outcome of the impending marriage between biotechnology and computer technology.

On the West Coast of the US, the US State Department made Silicon Valley a "no-go" area for Soviet citizens and diplomats. And in Sweden, four crates believed to contain a DEC Vax minicomputer were stopped by customs officials who suspected shipment to the USSR.

The *Sunday Times* billed the crates as containing a complete missile guidance system, while a US customs officer, perhaps a bit closer to the mark, said the equipment could be used for just about anything.

Spies and bio-computers provide the kind of excitement which ensures that trade papers like *Computer Weekly* no longer have the computer industry all to themselves. National newspapers, television and radio are all devoting more and more attention to what was once a specialist field.

It is often easy to sneer at their "unsophisticated" coverage. That is a mistake. Sensational as our industry is becoming, it is finally coming out of its closet, and becoming accessible. That is a painful, but necessary part of growing up. It can also be fun.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Patrick Bermingham of Dublin, who wins £5.

Computers are here to stay. They have joined the radio, the car, and the television as a part of everyday life.

Sunday Tribune

LETTERS

Cool reaction to a review

I HAVE read Arnold Arnold's "review" of my book, Build Your Own Export System (*Computer Weekly*, November 10) and would like to draw your readers' attention to the method which he attributes to me.

He describes it as follows:

"If you believe that a cold day is likely to be followed by a warmer one (or vice versa) and that this increases the likelihood of rain by 60%, you then enter that fact on your informational matrix.

"If you think you know something else that creates a likelihood of rain, you enter that figure as well.

"You then average the total and get 50%, which is the probability of precipitation for tomorrow."

I should like to make it quite clear that at no point in the book do I suggest such a method of working. I would also like to make it clear that I cannot think of any situation in which such a method might reasonably be applied.

If, as he claims, the statistical analyses I provide are "all known to most secondary school students", then that is clearly a level of education to which Arnold might usefully aspire.

Without dwelling on any other inaccuracies contained in the "review", I would simply point out that these errors could have been easily avoided by the conventional technique of reading the book priar to publishing a review thereof. This may seem like a hard way to earn a reviewer's fee but, honestly, such a method as described could not have been entertained by anyone who had managed to get beyond , say, page 22.

CHRIS NAYLOR
c/o Sigma Technical Press.

Too old to work at 35?

AS a systems graduate with data processing experience from 1965, I am puzzled by the report of Andrew Thomas (*Computer Weekly* Recruitment Supplement, November 10) and cannot reconcile the second and ultimate paragraphs, although a year's unemployment possibly confounds my perspicacity.

Could it be explained why with over 10% of the computer workforce on the dole, that there is a shortage of experienced staff? There is a hint to the answer in John Riley's report of the Cash Survey on poaching of staff. Over the last year I have applied for over 300 posts and gained 50 interviews, and my overall impression is that employers are only willing to recruit from existing installations, irrespective of any training needs.

Furthermore, there is an industry-wide discrimination against anyone over the age of 35 – presumably because we cannot cope with any problem not reducible to a dollar-sized card patterned with rectangular holes.

The industry should be reasonable enough to grasp that the shortage of experience between the ages of 25-35 cannot be alleviated without a time-machine. The position could be improved by considering the potential contributions of us sons of Babbage, and removing selection decisions from the preteradolescents with more distaff than staffing ability.

Is it possible that the computer business is the tightest closed shop in the country, outside journalism and the law?

I would appreciate comment from other grounded veterans.

RALPH GEE
Richmond
Surrey.

Baseband confusion

I AGREE with my old friend Martin Hewitt (Letters, *Computer Weekly*, November 10) that Fred Jennings' Jensheets are an excellent primer.

However, in Jennings' November 10 article, he is incorrect in asserting that baseband modems may not be used on British Telecom leased circuits. As any unwary user, who does not use baseband modems far remote data links in the immediate area, will spend much more than he needs to, this letter will try to put the record straight.

There is, we acknawledge, a lot af confusion in this area. Baseband madems, line drivers and limited distance modems are not synonymaus.

Line drivers transmit original data to line, without using any madulatian scheme. Therefore, it is incorrect to call them modems (modulator/demodulators), although they use baseband line circuits. They require DC line coupling and continuity and are, therefore, hazardous to use between remote sites between which potential differences (voltages) may exist.

The effective operating range of line drivers is inversely proportionate to the transmitted data rate.

Line induced voltages during thunderstorm activity will also be far more of a problem than with transformer-coupled baseband (or voice band) modems.

Limited distance modems are cost-reduced unlimited distance voiceband modems, lacking the auto-equalisation circuitry needed for the latter to work reliably at high data rates. Our own LDMS will typically operate at up to 200 miles over BT schedule D circuits.

Baseband modems (also known as local modems, short haul modems or limited distance data sets) use original data as the modulating signal in s form of pulse code (or digital) madulation. This enhances effective receiver sensitivity (hence rsnge), relative to line D drivers, and eliminntes any need far DC coupling/continuity, with the attendant problems.

In summary, line drivers are best restricted to on-site circuits although, even here, lighting induction can be a problem on many sites. Basebsnd modems can be used with confidence on-site or on BT provided external basebsnd circuits.

DAVID STREET
Marketing manager
Gandalf Digital Communications
Warrington.

Putting Erlangs to the test

THE article (*Computer Weekly*, November 3) by Donald Kennett quotes BT director John Alvey describing a new telephone exchange as "a 1000 Erlang (calls per hour) exchange".

I have frequently used the "Erlang test" as a test of competency in telecommunications, and it is sad to see that John Alvey (of all people) is reported as failing it. I hope that it is in fact not him but your reporter who is not aware that an Erlang is a measure of traffic rather than number of calls, and that the exchange in question should statistically be able to handle some 20,000 calls per hour.

The test is of course to introduce a measurement in Erlangs into a conversation, and then to see whether the other parties use it correctly – perhaps John Alvey was using it to test your reporter's knowledge!

Dr J. S. LITTLER
School of Chemistry
University of Bristol.

The meaning of mips

YOU published a letter by Josephine Shaw (*Computer Weekly*, November 3) suggesting that the acronym mips meant million instructions per second. I have always heard this term used as machine instructions per second (except by IBM-ers), thus mips would be roughly of the same order as flops, floating operations per second, and a million mips would be one megamips.

Could you clarify exactly how the units mips and flops will be used in the future?

ROGER ANDREWS
Northampton.

For many years mips meant machine instructions per second. Now that all mainframes and most minis can easily be described in terms of millions of machine instructions per second, general usage has decreed that mips (or mip, as in a three mip machine) represents that. The term megamips is rarely used. Megaflops (millions of floating point operations per second) is the preferred usage. – Editor

The Ideal system

I AM writing to correct a slight error in your piece "ADR woos users with ideal system" (*Computer Weekly*, November 10).

The article suggests that Ideal translates calls on VSAM files to Datacam/DB calls. We do indeed have a VSAM Transparency feature, but it works rhus:

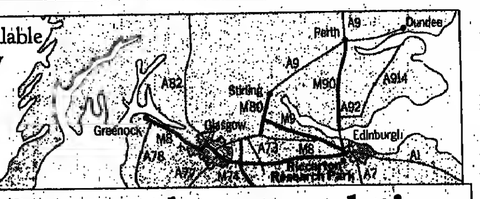
1. Using a utility, the data is defined to the Datadictionary.
2. Data in existing VSAM files is loaded into Datacomb/DB database(s).
3. Existing VSAM programs accessing that data are linked with the VSAM transparency feature.
4. For online CICS programs, a one-line modification is made to CICS.
5. Both batch and online programs continue to operate unchanged against Datacom/DB rather than VSAM.

Even existing programs will run faster, and use fewer CPU IO resources using VSAM transparency against Datacom/DB than against native VSAM.

NICHOLAS POLLARD
Managing director
ADR
Hitchin, Herts.

■ MORE LETTERS – PAGE 16

There's a new research unit available at Riccarton which comes with a few inclusive extras–scientific libraries, computers, laboratory equipment and, most importantly, the human resources of a technologically powerful university.



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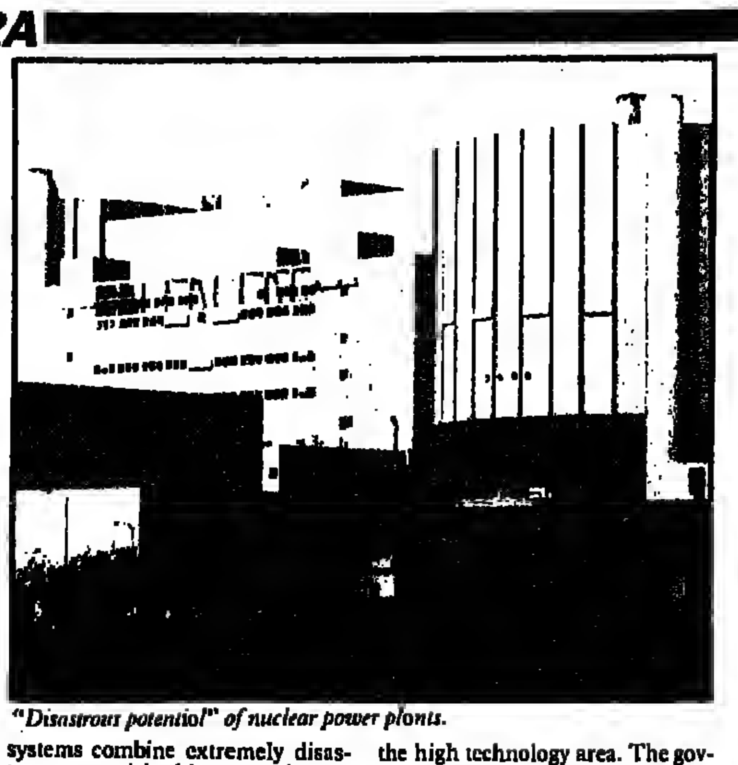
CND has non-violent aims

A PARAGRAPH in Puzzler (*Computer Weekly*, November 10) reada: "The game involves breaking into a nuclear power plant, and blowing it up. Perhaps it has a potential among members of CND."

The authot would appear to be mistaken about the aims and methods used by CND. Its primary aim is to rid the world of nuclesr weapons (nuclear power atations being a secondary, and only partially related issue). The methods that it uses and advocates are entirely non-violent as it believes firstly that violence ruos counter to a disarmament philosophy and secondly that any use of violence, especially within one's own country against fellow citizens, would be counter-productive.

I will refrain from liating the many arguments and facts which support CND's position but will mention two that are relevant to us as computer professioonals.

It seems inevitable that only extremely small systems are capable of being made error-free. Nuclear power plants and "defence" systems combine extremely disastroua potential with uncertainty, a high degree of complication and large size. They have been the location of serioua accidents, red alerts and other nearly final accidents in the past and by their very nature almost guarantee o worse accident in the future.



"Disastrous potential" of nuclear power plants.

Secondly, government priorities are inappropriate for a country wishing to maiotain its positian in the high technology area. The government is fulfilling its stated desire to increase defence expenditure by 3% in real terms (*Guardion*, November 7) snd is greatly increasing the number of ouclear weapon carriers (planes and mlssiles) and warheads in this country. Meanwhile we are beina told to tighten our belts.

D. SAUNDERS
London E8.

Does Trans-Basic set back the art of programming?

I NOTED with interest your article on the language Trans-Basic (*Computer Weekly*, November 10). I have always believed that the aim of a good software engineer is to write code that (a) works and (b) is understandable. The Trans-Basic code shown might be very compsct but it is not exactly readable.

For many years the aim has been to remove the mystique from programmiog. This language seems to be setting the art of programming back a number of years.

The fact that GOTO scores n low point is proof that no effort has been made to structure the program.

Is it really worth, for a non-real time system, the extra saving which an incomprehensible piece of code produces? After all, most of the time is taken with disc access anyway.

It is claimed that a Trans-Basic program can be developed in about two-thirds of the time of other languages. I would be interested to know how much longer it would take to debug.

If the move is to languages such as Trans-Basic then the hopes of the Alvey Committee that the UK will lead the world in software engineering by the end of the Eighties will ocver be realised.

PAUL HIGHAM
Lecturer
Bromley College of Technology.

Authority on Ada language

I MUST query Claire Gooding's implication that SDL's Perspective product justifies that company's right to be considered "the country's most foremost [sic] authority on the Ada real time language" (*Management Review*, November 10), particularly since the next paragraph appears to indicate that the product is actually a Pascal support environment.

CAP may be considered to have at least as credible a position in the Ada marketplace, having been the first European distributor of TeleSoft-Ada, the first commercially availsble implementatioo of the Ada language.

This compiler and associated computer based learning package and embedded syatem development package are available now for a range of machines, including Digital's Vax and the IBM PC.

CAP is also represented on the steering committee and a number of the specialist sub-committees of the users group, Ada Language UK, and as the leading member of the Augusta consortium has taken part in a government-funded Ada methodology study.

We take pride in our claim to be Britain's premier Ada systems supplier.

ANDREW MACKIE
Reading.

Naylor's expert book is really for inexperts — not researchers

AS s leading publisher of computer books, we have long ago resigned ourselves to the variability of reviews. Normally, we would never quibble, simply because an element of subjectivity is bound to creep in.

But the review by Aroold Aruold of our book *Build your own Expert System*, written by Chris Naylor, was so far removed from objectivity that we feel obliged ro reply.

What Arnold seems to have failed to realise is that this book is not aimed at researchers and other high-level workers io artificial intelligence. As all other reviewers have discerned, it is a practical introduction to what, for many people, is an obscure and difficult subject.

Expert systems are, of course, notoriously difficult to define. Nevertheless, the methods used in the book have been aod *are still* used in many substantive expert systems, which would be classified as such by any specialist in the area. For example, ooe of the most well known, and most successful expert systems is Puff, which uses probabilities to diagnose certsin breathing disorders. Similar methods are used in the medical diagnosis program presented in Naylor's book.

Surely, then, this book deals with genuine expert systems. Many other parallels can be drawn between other *working* systems and the seemingly simple ones which are presented in the book.

The main point is, of course, that the programming required to implement a pretty reasonable expert system (ie one that stands at least as good a chance as being correct as s human) is moderately straightforward. The difficult part is to build up a comprehensive knowledge base by interrogating the human experts. Again, the programs in this book demonstrate the desirable feature of knowledge acquisition — so important facet of an expert system.

There will be those who say: "But expert systems have to be written in Lisp (or Prolog, or whatever)." This is nonsense. The availability of Lisp may make programming easier for those who are well versed in the language, but the great majority of micro users only have access to Basic.

Naylor presents all of his programs in Basic, and, as such, they may not be quite as elegant or efficient ss their Lisp counterparts. But that is not the point. What this book does is to provide an easy route (yes, even for those of us who "only" have secondary school mathematics) to implement simple but working expert systems on popular micros.

I am plessed to report, by the way, that the book has been adopted as a recommended text by Kingston Polytechnic.

GRAHAM BEECH
Sigma Technical Press
Wilmslow.

APOLLO WHO?

Computer Weekly
Top brain quits DEC for Apollo

Designing and Design
Software show staged by Apollo

Datalink
Apollo near to Cad/Cam code deals

Computing
CAD Centre takes Apollo kit over Perq

Computer Weekly
Apollo wins big European order

Computer Talk
Apollo lands £3 million CAD order for Domain

Computing
Domain overtakes Perq in Pafec deal

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apollo DOMAIN '83 EUROPE

Last week the National Economic Development Office published a user panel report. Philip Hunter examines the important lessons to be learnt

Learn how to market, suppliers

THE story is an old one. Information technology is not spreading as quickly as it might through UK industry because users aod suppliers are not talking to one another. As Baroey Gibbens, chairman of systems house CAP puts it: "The difficulty is getting users and suppliers in the same room without selling."

This oeed for talking without selling between users and suppliers is emphasised in the user panel report published last week by the National Economic Development Office (NEDO)*. The report — the first of a series of working papers from the Information Technology Usera Panel — accuses UK suppliers of poor marketing. They are too preoccupied with technology aod fail to aupport otherwise good products, it says.

Prices are too high, and users' opinions are oot heard. The report is welcomed by Doug Eyeions, director general of the Computer Services Associatioo, which represents compaoies which use hardware, but are suppliers of software and services.

Suppliers are too preoccupied with technology and fail to support otherwise excellent products

"I'm delighted that at last NEDO has approached the question of marketing," says Byeioos. "We've been pushing a similar theme for same time."

Eyeiona agrees with the criticism of UK manufacturera, while carefully drawing the line between these hardware-makers and his own members, which he says would oot stay in business if they didn't listen to the user's voice. The NEDO report suggests that resistance to computers would diminish if suppliera provide their manuals and guides in more straightforward English with less jargoo.

Life is also made difficult for users, the report says, by the standards committees, which all too often fudge and compromise. The result is that standards are ambiguous, and riddled with options that defeat the object of having them at all.

The report was prepared by a user panel set up by NEDO on behalf of UK suppliers. Privately, some of the panel members are sorry that the tooe of the report is so harsh towards UK suppliers, and are anxious to make amends in public by praising the technical quality of UK products.

"The main core of the panel thought that oo the technical side, UK companies are as good as anybody," said Douglas Fraser, who represented NEDO oo the panel.

The problem, says Fraser, has been, and still is, weak marketing. "Ofteo a US company leaps in and says: 'Hey, this is the best thing since sliced bread. We're here to sort the problems out'."

UK companies are more reticent about their products, and often miss opportunities, says Fraser, eveo when they are technically superior to their US rivals. Equally vital is that systems are well supported after they are installed.

As systems become more complicated users will look more to suppliers which will support their systems and enable them to take advantage of new developments, says the report. UK firms must convince prospective customers that they can meet these criteria, by giving more effective marketing and support.

Another result of the increasing complexity of systems is that many firms, particularly new users, will be hoping to buy all their hardware and software from one souree.

Computer manufacturers cannot be blamed for not being able to supply everything from A to Z, but in the UK, too few suppliers are prepared to forge deals with companies that can fill in the gaps.

Perhaps the report is a little unfair. After all, there are plenty of examples of co-operation in the UK, and ICL has shown itself far more willing to take on board the products of software companies since the dynamic Robb Wilmot took over as managing director in May 1981.

But ICL emerges from the report's savaging of UK computer suppliers with its chin fairly high. It was crucial, the report says, that database equipment such as ICL's CAFS should be part of a standard range of equipmeot.

And what does ICL do the week the report comes out? It annouoces that CAFS is to become part of a standard range of equipment — the 2900 range.

The NBDO panel, which includes Barney Gibbens, lameots the scarcity of packaged software addressed at specific applications. Many smaller organisations cannot afford the cost of custom-built software, which can be enormously expensive — some consultants charge £70 an hour for their services.

There is a oeed for software packages written for clearly identified subsectors of industry, says the report.

There are pleoty of packages for estate ageots, accountants, and other large vertical markets. Gibbens suggests that there should be similar offerings for small vertical markets like agricultural accounting. There is also a oeed for something off the shelf that can be readily adapted to the oeeds of sucb minority markets, he says

The report also urges more use to be made of application generators so that users can make minor chaoges to staodard packages without having to invest in full-time programming people.

Standards committees all too often fudge and compromise

The report suggests that some software and hardware prices should drop by a factor of five. For example, printers which provide high quality copies of things shown oo a normal monochrome screen cost around £20,000. The makers of such machines should be aiming at £5,000, the report urges.

In the office the main thrust of computer technology has been towards the typist. The target should now be the management and professional sector, says the report.

The report lists several user bodies, including the National Computer Centre information technology circles. There are four circles in this group, established for the exchange of information on office technology, communications, data processing and security.

There is also the Office of the Future Information Exchange (Ofix) aimed at small- and medium-sized organisstions at an early stage of office automation.

The biggest independent user grouping (as opposed to bodies like the IBM Computer Users' Association which sre users of particular makes of hardware) is the National Computer Users Forum (NCUF).

Users do not escape blame from the NEDO report. They are urged in a tone that suggests light chastisement, to shout as loudly, as often, and in as many ears as possible about standarda.

The report suggests that at the mament, users only look at these standards through half-closed eyes. It is about time they opened them, since the benefits are plenty — a reduction in the number of terminals needed to access different systems and the ability to communicate more easily with users in other organisations.

The truth is perhaps that users and suppliers are both to blame for the alow acceptance of computers, as Gibbens suggests: "Things are terribly user-friendly provided you know what the user wants."

And who is to blame if the user does not know the answer to that question?

*User Perspective on Information Technology, £3, National Economic Development Office, Millbank Tower, Millbank, London SW1P 4QX. Tel: 01-211 4717.

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NEWS ANALYSIS

The budget for Europe's response to the Japanese fifth generation has already been pruned, and the whole future of the programme is on the agenda for the political leaders' meeting in Athens next month . . . John Riley reports

Esprit hangs in balance at EEC summit

CADIOU . . . "A grassroots progamme that comes from the best people in Europe."

THE European summit in Athens in December will determine the future of Europe's five-year IT research programme, Esprit.

Even though £60 million has been lopped off its original budget of £900 million, and the programme is now snarled up in wider political manoeuvring, officials are confident it will get the green light.

Esprit, the European Strategic Programme for R&D in Information Technology, is the European Community's response to the Japanese fifth generation challenge announced late in 1981. It was masterminded by Viscount Etienne Davignon, the European Commissioner for Industry, who believes the European IT industry must pool its R&D resources to survive the threat from Japan and the US.

By European Community standards, the Esprit proposals have worked their way quickly through the European institutions. European politicians and bureaucrats as well as national governments, are all agreed on the importance of the programme and the £14 million one-year pilot programme, which got underway this summer, was proposed, agreed and implemented within a year.

In contrast the Informatics Programme took four years to get through.

But the main £840 million Esprit programme, proposed this summer and expected to proceed as smoothly as the pilot scheme, hit problems late last month. Although the technical and administrative details are virtually decided, the proposed five-year programme has become tangled up in the European budgetary crisis, and the final decision about its future will be made at the summit in Athens next month.

The European Community is funded from two sources: national governments, and from the VAT tax levied throughout Europe. It gets 1% of the VAT, but total VAT returns are declining and Community running costs are rising.

So the Community needs more cash. The UK government is against an increase in its contribution — and looks like sticking to that position.

That means the European Community will have to shave its current programmes. One solution is to reduce the Common Agricultural Programme, but the French will not buy that, and Esprit has now become a pawn in the wider bargaining game.

Just three weeks ago European ministers slashed £60 million off Esprit's proposed £900 million budget, and the UK refused to commit any cash at all to the programme until the wider budget had been sorted out.

The UK government's contribution to Esprit should be £100 million over the five years. Of the £840 million, European industry will put up half.

Germany also refused to commit cash, but that was over certain administrative details which are expected by European officials to be cleared up soon. The other eight Community countries are now committed fully to Esprit.

The whole question will be thrashed out at the Athens summit, and well-placed officials in Brussels believe Esprit will go through after a bitter debate.

Those officials comment that the Commission can just about cope with the reduced funding for the programme, and that there has been no change to the aims or content of the programme. The timetable also remains unchanged.

Davignon, the driving force behind Esprit in the Commission, has stated that if it is necessary for the European Commission to arbitrate on projects at the end of the year as a result of the overall Community budget, Esprit will be the top priority. "Only a major catastrophe will stop the programme now," confirmed one official.

The Commission believes it will be a catastrophe for Europe if Esprit is held up. The urgency stems from Europe's increasingly negative balance of trade in information technology products.

"In 1975, the European IT trade balance was $1.7 billion in credit," says Jean-Marie Cadiou, director of the Commission's IT Task Force. "It is now in deficit by $5 billion and that will increase to a deficit of $9.7 billion by 1985."

Cadiou pinpoints the reasons for this growing IT trade deficit as resulting from "Europe's fragmented market, national champions leading each country's IT activities, migration of centres of innovation, shortage of skilled manpower and technology lags."

It was against that gloomy backdrop that Davignon got the main European IT companies together to sit round a table to draw up a programme for Europe's long-term R&D strategy. Those companies included ICL, GEC, Plessey, Siemens, Nixdorf, AEG, Thomson-CSF, Cii-Honeywell Bull, CIT-Alcatel and Olivetti.

"The Esprit programme does not come from bureaucrats in Brussels," explained Cadiou. "It is a grassroots programme that comes from the best people in Europe, including small companies, laboratories and universities."

The resulting programme is structured around five interrelated themes. Three of these address the key technologies which are at the core of any information technology application, and two are the key IT applications of the 1990s. These are:

- Advanced microelectronics, the technology which provides the physical structure for any information system. Work will embrace design, manufacture and testing of VLSI devices in silicon and other materials. One aim is to break the one micron barrier for components in integrated circuits.
- Software technology, which controls the behaviour of any IT system. Aims are to establish standardised software interfaces, to produce an automated software engineering environment, and to bring about a change so that instead of software being labour-intensive as at present, it becomes capital intensive.
- Advanced information processing, which is to work out how to bring together hardware and software to make the quantum leap from today's data processing to the next generation of knowledge processing and expert systems. So instead of the program being the solution, it will in future help choose the solution. Systems will perceive information through a wide range of sensors, relate it to knowledge already stored, then create new knowledge using rules and inference.
- Office automation is a key area of the 1990s, and research will be directed towards developing multi-media interfaces for all office communication needs and develop electronic filing systems for unstructured information (text, voice, graphics, images, etc.)
- Computer integrated manufacturing, to integrate control subsystems on to chips and study subjects such as real time sensor-based imaging and advanced components to establish a supersystem such as an electronic factory.

DAVIGNON . . . "European IT industry must pool its R&D resources."

Just three weeks ago European ministers slashed £60 million off Esprit's proposed £900 million budget, and the UK refused to commit any cash at all to the programme until the wider budget had been sorted out. The UK government's contribution to Esprit should be £100 over the five years. Of the £840 million, European industry will put up half

The 36 collaborative one-year projects in the pilot Esprit programme, announced in August, are all based on those five themes. UK participaots are involved in 21 of the 36 projects, with Plessey and GEC respectively taking part in seven and five projects.

Other British companies in the pilot phase include SDL, Scicon, British Leyland Systems and British Aerospace Dynamics, as well as ICL, Marconi, Logica, STC and STL.

Universities tsking part include Southampton, Newcastle, Sussex and Strathelvde and Queen Mary College London. The Polytechnic of the South Bank is also involved.

Each project funded by the main Esprit programme will focus on ooe of the five categories.

There are two classes of projects:

Type A are mainstreom projects and will take up 75% of the Esprit cash, and will be 50% funded by the companies that take part in them.

Type B projects are high risk speculative projects in promising areas: they may get more than 50% support from the Community.

For the Type A projects, at least two companies from two different European countries must take part; and while that is not mandatory for the Type B projects, international projects are more likely to get preference.

The total value of the programme will be about £840 million over the five years, of which £420 million is to be put up by industry. It compares well with the UK Alvey programme's total of £350 million and the Japanese fifth generation programme's total of £600 million over ten years, but pales somewhat when compared with IBM's annual R&D budget which is now over £1,000 million.

The Esprit programme has its critics, especially the smaller companies, which are not happy with the 50% they have to put up. Last June, the Association of the European Informatics Industry hit out at the programme for not providing enough support to small companies.

The main objections are that the programme is inadequately funded, that it benefits only large companies, that it makes no provision for competitive research, that results will not be freely available and that selection of projects will be politically motivated.

Mike Smith, chairman of software house CAP, which was involved in a pre-pilot phase of the Esprit programme, thinks funding should be 100%. "With 50% funding small companies will only participate to do things they would do anyway."

Smaller companies also regard the Esprit programme as a gravy train for the large companies, and as a backhanded way for national governments to prop them up.

The Commission vigorously counters such suggestions. "We only emphasise and re-emphasise that selection has nothing to do with the size of the companies but on the nature of their proposals," says Horst Hünke, who is manager of the Esprit programme, and responsible for selecting the participants in the programme.

The UK Alvey Programme in close contact with the Esprit programme.

Brian Oakley, the Alvey Programme director, explains: "We are determined to integrate the two programmes as far as possible. For example, standards work is important for the Alvey programme, but is far more powerful if conducted through Esprit."

From his vantage point Oakley sees one important benefit of the Esprit programme as long-term international co-operation. "All present the best laid plans in Europe are foiled by the personal relationships of those in top positions who have been brought up not to co-operate."

HUNKE . . . "Selection has nothing to do with size of companies."

"Even if Esprit doesn't immediately solve the fifth generation problems, it will help to bring about convergence in Europe. The vital thing is that the younger researchers work together and learn that their foreign counterparts are reasonable, so that when they eventually get into powerful positions they will find it second nature to co-operate."

The Esprit programme has its critics, especially the smaller companies, which are not happy with the 50% they have to put up. Last June the Association of the European Informatics Industry hit out at the programme for not providing enough support to small companies. The main objections are that the programme is inadequately funded, that it makes no provision for competitive research, and that selection of projects will be politically motivated.

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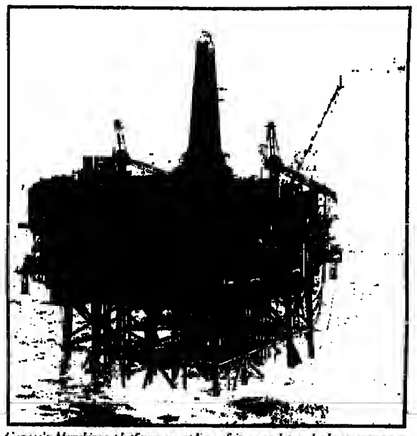


Conoco's Murchison platform: a replica of its control panel plus a computer make up the simulator.

Conoco donates oil well simulator

CONOCO – the oil multinational which frequently annoys its competitors by starting petrol price wars – has donated a £1 million offshore production simulator to Aberdeen's Robert Gordon Institute of Technology (RGIT) to teach students how to control oil production on a live well.

The simulator consists of a computer and a reproduction of the control panels on Conoco's Murchison platform, housed in a purpose-built cabin. Conoco has been using it since 1980 to train staff and simulate the effect of possible changes to its Murchison field, such as sinking a new well or increasing the rate of production.

The simulator paid for itself while it was being built, according to a Conoco spokesman. Experience gained while developing the simulator led to improvements in operating the real platform, reducing the chance of the rig being put out of action.

One of the most important aspects of the simulator is that it can imitate up to 250 potential malfunctions of the drilling platform, ranging from valve failure to a full blowout caused by a natural gas explosion.

"It can expose the operator to situations it might take him years to come across in the field," says the spokesman.

A blocked oil platform must duplicate the control room equipment exactly and respond to the operator's actions in real time if it is to successfully replace training on the job. Conoco's simulator, finished in 1980, is the first to do this, according to the company.

Recently, Conoco has been using the simulator less, using it mainly for refresher courses and testing new operating procedures.

The oil company still has the option of using the simulator 10 weeks a year.

The equipment, built by Rediffusion Systems, will be used to demonstrate control of offshore oil wells to diploma, degree and postgraduate students at RGIT's engineering schools.

"No other university or institution has such a piece of equipment," says RGIT principal Peter Clarke.

Satellite reveals stars' secrets

CELESTIAL objects big and small have been discovered by the infrared astronomical satellite (IRAS), which since last February has been sending data down to the Rutherford Laboratory on the Berkshire Downs.

Among the 200,000 astronomical bodies detected by the orbiting telescope are several thousand new discoveries including whole galaxies of stars, stars in embryo, dying stars, and comets.

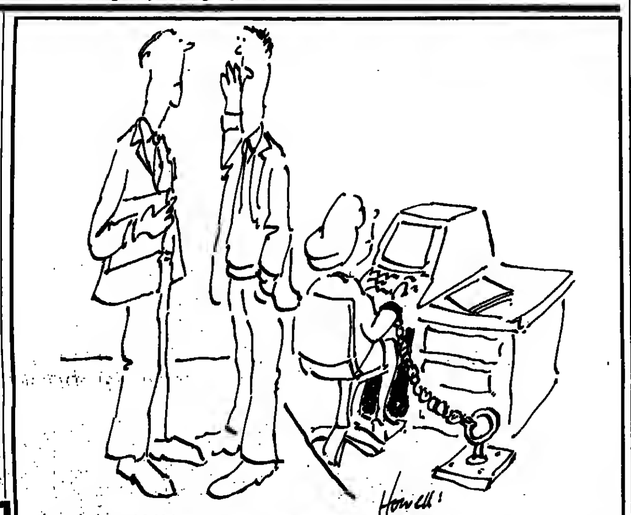
One of the most exciting discoveries was made in the vicinity of Vega, one of our neighbouring stars, which appears to be surrounded by a huge cloud of dust and rock. This material is probably left over from the star's formation, and could well, astronomers tell us, be condensing into a solar system of planets like our own.

IRAS is a joint project between the UK, US and Holland, to build a complete map of the sky using the infrared wavelengths invisible to the eye and conventional telescopes.

Every 12 hours the satellite passes overhead the Rutherford laboratory and unloads its data of recent observations as radio waves. These are converted to microwave signals passed along cables to DEC PDP-11 minicomputers for preliminary analysis.

An ICL 2900 is then brought in to help identify the astronomical bodies so that the satellite can perform a more thorough check on its next orbit, which overlaps with the previous one. Final analysis is done at Rutherford and elsewhere.

The analysis team must be pleased at the extraordinary range of objects found. One of the latest discoveries is a tiny asteroid, just a mile across, which moves round the sun in an orbit which intersects the earth's orbit. Small it may be by celestial standards, but should it one day crash in the Atlantic, not an impossible event, we would all be swimming or steamed by the heat produced.



"I think she was caught fraternising with one of the contract programmers."

Barry chips in on Radio 4

BARRY Norman, BBC film buff, will present a three-month radio series on computers starting January 14, 1984. "It will cover everything from the latest bit of electronic chippery to the social importance of the government mainframe," says the programme's producer Trevor Taylor.

The programme will go out at 5pm on Saturday afternoon on Radio 4 and be repeated on VHF at 11pm on Tuesday. Taylor has added an unusual feature – the repeat will be five minutes longer than the original show to include hot computer news.

The first repeat, on Tuesday January 17, will include details of the Which Computer Show, to be held in Birmingham that week. The programmes will dish out software to illustrate the topics being discussed.

When talking about large corporate databases for example, listeners will be given a simple database so that they can play around with the concepts at home.

The software will be sent as an audio signal which can be recorded on a cassette linked to a radio, and then loaded into a computer. Taylor says the BBC has demonstrated this on the Tomorrow's World TV show. The software will also be available on Ceefax.

Taylor says that if the programme is successful, future shows might introduce listeners to the excitement of interactive computing, with their micros linked by telephone line to a BBC computer in the studio.

The programme will be called the Chip Show, and the software delivery service will be called the Chip Shop's Take Away Service. It seems as if the BBC is grossly overworking the chip pun, but presumably it feels the lay listener has not yet been much exposed to such geriatric rhetoric.

And what, I asked Taylor, does Barry Norman know about computers? Not a lot, is the essence of the reply. But with Taylor expecting more than one million listeners, an intelligent layman was perhaps to be preferred to a less articulate expert.

Peterborough is in Pall Mall

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Database that spins a yarn

INCREASING use is being made of computer graphics in the textile industry, to help designers and buyers pick the patterns and colours they want for a fabric.

The Scottish College of Textiles (Scot) at Galashiels is developing a computer graphics system that could replace the woven sample from which buyers of tweed make their final choice. The idea is that the pattern is simulated on the screen from a database of yarn colours and thread patterns.

Patterns are built up on the screen by specifying yarn colours and patterns, and then adding threads together in a simulation of weaving cloth from individual coloured yarns on the loom.

The British Technology Group (BTG) is providing £21,000 over the next two years for the project, and investment is also coming from the Yorkshire-based Illingworth Morris Group, which produces cloth for suits.

The BTG will take the marketing rights for the software written by Scot.

Scot does not think its system will eliminate completely the needs to weave fabric samples, but should enable designers to [illegible] list of prospective [illegible] can easily be adjusted on screen.

Vertical lights do the trick

THE science of ergonomics seems to be catching on at last. Increasingly it can be seen in practice in offices, as organisations realise that spending money on making working conditions better for their staff is cheaper than not spending it.

The big insurance group Hambro Life for example, has reported a 15% increase in the productivity of its data preparation staff following installation of vertical lights on pedestals. At the same time, the operators are finding working life a little lighter.

The theory is that the light is directed at the ceiling, which is painted white and reflects the light evenly back down.

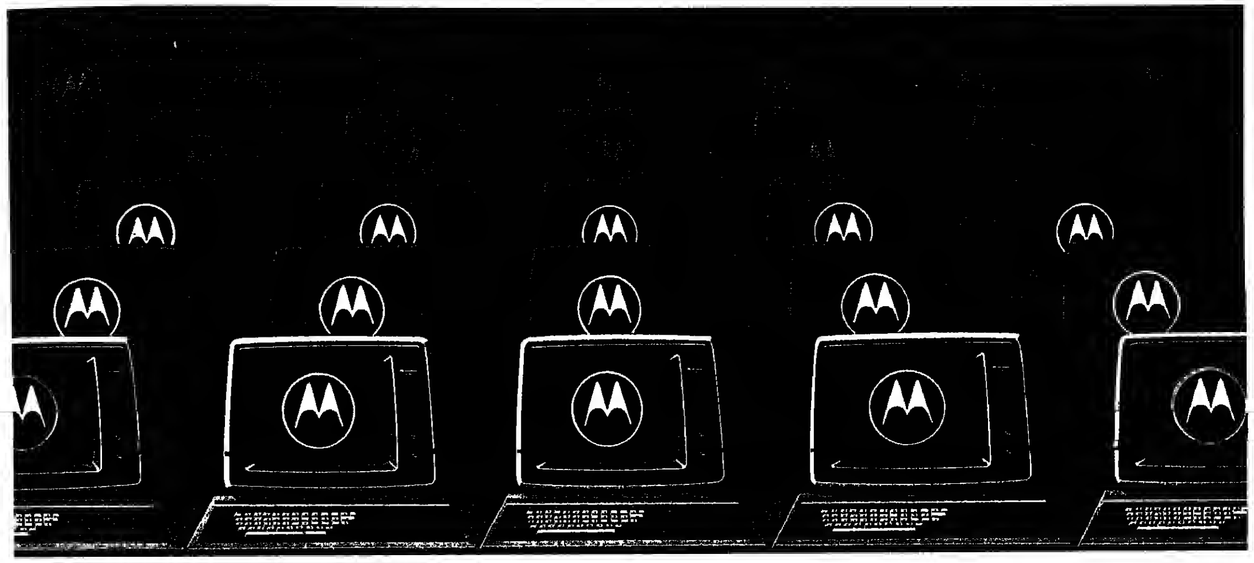
The new upright lamps were tried out on each of five data preparation departments before being installed permanently. "They all went mad when it was their turn to return to the old lighting," says supervisor Brian Baker.

The lamps each use 200 watts, and Baker says they are no more expensive to run than the old strip lighting. Before installing the lights, Hambro tried putting blinds over windows to reduce glare from the VDUs. All this did was to cut out the natural light. But the vertical lighting seems to have done the trick, with operators now reporting fewer headaches.

Meanwhile, several US companies are reversing the tide to open-plan offices by putting their programmers back in private rooms. As with Hambro, productivity improvements have been reported, but without conclusive evidence. Also like Hambro, most of the programmers prefer their new conditions.

Ergonomics, like conservation, has not yet proved as popular in the UK as elsewhere. But, as Hambro has found, it need not cost much to ease the lot of a VDU operator.

Workplace is compiled by Philip Hunter



Motorola creates a new kind of office automation company

Motorola recently created the Motorola Information Systems Group by combining the skills of several companies. Among them were Four Phase Systems and Codex.

The result is a company that brings you complete systems capabilities: a single source for both processing and networking elements in the office environment.

This integration of computing and data communications capabilities provides many advantages.

Obviously, there is the convenience and efficiency of dealing with one vendor for all systems requirements.

But even more important is the opportunity to "custom-tailor" your systems to your specific needs, because of the very broad range of processing and communications products we have available. (Many of these have been productively at work in customer installations in Europe and around the world for years).

In addition, there is the flexibility of our networking capability which allows data from divergent types and makes of computers to be transported on one network.

Motorola Information Systems Group represents a unique combination of skills, technologies and options for solving problems, now and tomorrow. Motorola, a world leader in electronics, provides support in terms of its size, global scope and financial resources.

And Motorola is no stranger to the worlds of information processing and data communications. The Motorola MC68000 microprocessor is the brain of some of the world's most widely respected microcomputers.

We also share a philosophy based on quality products that meet customer needs and exceed customer expectations.

We hope to prove that to you, soon.

For more information, call us, write us or visit the Motorola Information Systems displays at the upcoming office automation exhibitions. We have a lot to talk about.

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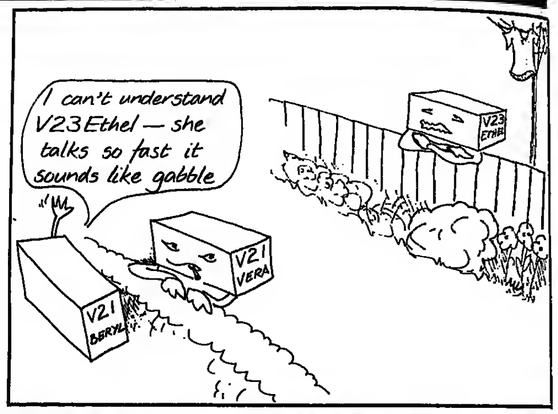
WORKPLACE EXTRA

What the user needs to know about modems

Seventh in the Jensheets series by Fred Jennings of Data Logic deals with modem standards



A MODEM (modulator-demodulator) is an item of equipment which converts serial digital signals into analogue signals and vice-versa. Standards organisations use the general abbreviations of DCE (data circuit-terminating equipment) to describe a modem and DTE (data terminal equipment) to describe a terminal, computer, or any device connected to a modem.

Therefore a modem has two recognisable interfaces:

(a) A DCE to leased line (or PSTN) 2/4 wire analogue interface.

(b) A DCE tu DTE multi-wire digital interface.

Standards organisations refer to each wire in the multi-wire digital interface as an interehange circuit. In the case of the EIA RS-232-C interface (discussed later), the DTE-DCE interchsnge circuits appear on o 25-way 'D' type connector on the back of the modem. Interchange circuits are used for a mixture of data, control and timing purposes.

The characteristics uf EIA RS-232-C interchange circuits are:

(a) For serial data signals, a nominal minus six volts equals a logical ono and o nominal plus six volts equals s logical nought.

(b) For control signals, a nominal minus six volts equals an OFF condition and a nominal plus six volts equals an ON condition.

The CCITT (Consultative Committee for International Telegraph and Telephone) in Geneva is a part of the ITU (International Telecommunications Union). The CCITT V-Series recommendations cover data transmission over the telephone network. They include specifications for modems, interfaces, test equipment and line quality.

The CCITT X-Series recommendations apply to data transmission over public packet switched networks such os PSS.

The following is a list of CCITT V recommendations which apply to Interfaces and voice-band modems:

V10: Electrical characteristics for unbalanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communications.

V11: Electrical characteristics for balanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communications.

V15: Use of acoustic coupling for data transmission.

V21: 200 bps (300 bps) modem standardised for use on the general switched telephone network.

V22: 1200 bps full duplex modem standardised for use on the general switched telephone network (PSTN).

V23: 600/1200 bps modem standardised for use on the general switched telephone network.

V24: List of definitions for interehange circuits between datatermination equipment and data circuit-terminating equipment.

V25: Automatic calling and/or answering equipment on the general switched telephone network including disabling of echo-suppressors on manually established calls.

V26: 2400 bps modem standardised for use on 4-wire leased telephone type circuits.

V26 bis: 2400/1200 bps modem standardised for use in the general switched telephone network.

V27: 4800 bps modem with manual equaliser standardised for use on leased telephone type circuits.

V27 bis: 4800 bps modem with automatic equaliser standardised for use in the general switched telephone network.

V28: Electrical charocteristics for unbalanced double-current interehange circuits.

V29: 9600 bps modem standardised for use on leased telephone circuits.

V35: Data transmission at 48,000 bps using 60-108 KHz group band circuits (wide band).

V36: Modems for synchronous data tranamission usIng 60-108KHz group band circuits.

V52: Characteristics of distortion and error-rate measuring apparatus for data transmission.

V54: Loop test devices for modems.

This recommendation defines four loop tests for DTA and DCE as follows:

Loop 1 is used as a basic test on the operation of a DTE. Signals sent by the DTE are returned directly to the same DTE for checking.

Loop 2 is a loop placed on the DTE side of the distant DCE. It is formed by applying pre-determined conditions to the interehange circuits at logic voltage levels within the DCE.

Loop 3 is a loop placed across the transmit and receive paths on the analogue line side of the Local DCE.

Loop 4 applies only to 4-wire lines and is formed by looping the transmit and receive paths at the distant end through a suitable attenuator.

The following is a list of CCITT X recommendations which apply to public data networks:

X1: International user classes of service in public data networks.

X2: International user facilities in public data networks.

X4: General structure of signals of International Alphabet No 5 code for data transmission over public data networks.

X20: Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for start-stop transmission services on public data networks.

X20 bis: V21-compatible interface between data terminal equipment (DTE) and data-terminating equipment (DCE) for start-stop transmission services on public data networks.

X21: General purpose Interface between datn terminal equipment (DTE) and data circuit-terminating equipment (DCE) for synchronous operation on public data networks.

X.21 bis: Use on public data networks of data terminal equipments (DTEs) which are designed for interfacing to synchronous Series V Recommendations modems.

X24: List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) on public data networks.

X25: Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode on public data networks.

X26: Electrical characteristics for unbalanced double-current interchange circuits for general use with integrated circuit equipment in data communications.

X27: Electrical characteristics for unbalanced double-current interchange circuits for general use with integrated circuit equipment in data communications.

X30: Standardisation of basic model page printing machine using International Alphabet 5.

X31 Transmission characteristics for start-stop data terminal equipment using International Alphabet 5.

The International Standards Organisation (ISO) produces standards for computer and information processing. Three standards produced by the ISO are concerned with the assignment of connector pin numbers to DCE-DTE interface circuits. The relevant standords are:

ISO 2110: This standard covers pin assignments for CCITT V24 interchange circuits with CCITT V28 electrical characteristics.

ISO 2593: This covers pin assignmenta for CCITT V24 interchange circuits with CCITT V35 electrical characteristics.

ISO 4902: This covers pin assignments for CCITT V24 interchange circuits with CCITT V10 or CCITT V11 electrical characteristics.

The EIA in Washington DC, produces interface standards which are used by modem manufacturers in the US.

The best known of these is the EIA RS-232-C standard (the C refers to the revision level).

The EIA RS-232-C standard defines the interface between DTE and DCE equipment employing serial binary data interchange at transmission rates up to 20,000 bps. The standard is made up of seven sections which include the functional description of interchange circuits, electrical signal characteristics and interface mechanical characteristics.

Therefore the EIA RS-232-C standard is equivalent to:

(a) CCITT V24 — description of interchange circuits.

(b) CCITT V28 — electrical signal characteristics.

(c) ISO 2110 — pin assignments.

The main difference between the EIA RS-232-C standard and the CCITT V24/V28 recommendations is that with the EIA standard each interchange circuit has a 2/3 character alphabetic reference while the CCITT recommendations have a 3-character numeric reference. For example the EIA RS-232-C reference for the Transmit Data interchange circuit is BA while the CCITT V24 reference is 103. The table on this page shows the EIA RS-232-C (CCITT V24/V28) interchange circuits.

There are some variations on the assignment of 'D' type connector pins to interchange circuits. For instance, on some modems which offer Standby operation on the PSTN, pin 24 is assigned to select Standby.

25-pin 'D' Connector Pin No	CCITT Circuit Ref	RS-232-C Circuit Ref	Description of Interchange Circuit	Direction DTE-DCE
1	–	AA	Protective Ground	
2	103	BA	Transmitted Data (TD)	→
3	104	BB	Received Data (RD)	←
4	105	CA	Request to Send (RTS)	→
5	106	CB	Ready for Sending [clear to send] (CTS)	←
6	107	CC	Data Set Ready (DSR)	←
7	102	AA	Signal Ground or Common Return	
8	109	CF	Received Line Signal Detector (RSLD)	←
9			Positive Test Voltage (American)	
10	–	–	Negative Test Voltage (Modems)	
11	126	–	Select Transmit Frequency	→
12	122	SCF	Secondary (backward) Channel RLSD	←
13	121	SCB	Secondary (backward) Channel CTS	←
14	118	SBA	Secondary (backward) Channel TD	→
15	114	DB	Transmit Clock	←
16	119	SBB	Secondary (backward) Channel RD	←
17	115	DD	Receiver Clock	←
18	141		Initiate Local Loop Back (Loop 3)	→
19	120	SCA	Secondary (backward) Channel RTS	→
20	108/1 108/2	CD	Connect Data Set to Line (CDSTL) Data Terminal Ready (DTR)	→
21	140		Initiate Remote Loopback (Loop 2)	→
22	125	CE	Calling (Ring) Indicator (RI)	←
23	111	CH	Data Rate Selector	→
24	113	DA	External Transmitter Clock	→
25	142		Test Indicator	←

PUZZLER

An Army convoy two miles long is travelling (at a constant speed) along a straight and level road. It takes eight minutes to pass a certain point. A despatch rider drives from the tail of the convoy to the head and back again. He takes six minutes (at a constant speed) to do the there-and-back trip along the side of the convoy before proceeding on his journey. How fast is the rider's constant speed?

Ignore the momentary pause as the turns round at the front of the convoy. Solution next week.

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DATA ADMINISTRATION

Last week in the first article of this series, we described what data administration is and proposed a role for the data administrator.

In essence, data administration is concerned with the well-being of the organisation's data resource, just as personnel administration is concerned with the organisation's personnel resource.

Similarly, in the same way that most personnel administration is not done by the personnel department, so most data administration is not done by the data administrator either.

The principal role of the data administrator therefore is to advise management on all data related matters and problems. Problems of data often cross organisational boundaries and their solutions consist of technical and organisational aspects.

Because so many other departments may be involved, often at a senior level, it is not practical to give the data administrator enough authority to resolve problems directly. Instead he must be given access to authority – permission to seek out problems, propose a solution and then get together the people with authority tu agree on action.

This second article discusses various aspects of setting up the data administration function.

How to triumph over your pressing problems

Richard Heagerty and Terry Smith describe setting up the data administration function

THE nature of data administration is problem-oriented. It is clear, therefore, that it must be set up to handle a number of tasks, each of which must achieve proven benefits, and meet a specific problem.

Companies differ in the data administration tasks they carry out. Some begin major data analysis and system redesign using the data dictionary as an important aid. Others decide to use the data dictionary and documentation as a strong central control mechanism.

Others again embark on major data reconciliation exercises to ensure data compatibility between systems, functions or countries. Some companies carry out only very minor reconciliation or documentation tasks.

More revealingly, companies differ in the perceived problems that trigger the activity. Impending disaster, bad past experience, cost savings, desire to keep in the technical forefront, difficulties in recruiting the right level of staff – all these are real life reasons why a data administration task is given the go ahead.

Next, companies differ in their organisation and nature. There are big differences between a large multinational with largely independent DP sections and a single-site single-DP section company, between a centralised and a decentralised company, between a government department and a manufacturing company.

Companies also differ a great deal in their style or ethos. In some, people are co-operative, in some less so. In some, people are more interested in new ideas than others. All these factors severely condition what is possible.

Lastly comes the question of how much management commitment is possible and available. It may be that a particular company needs to carry out sweeping data administration activity, completely altering the way it operates. But unless sufficient management support can be obtained it is pointless to try to achieve this – at least at the first step. One has to operate within the limiting factor of what support is or can be made available.

Given these differences then, how should we select the first data administration task?

The first pitfall to avnid is choosing the initial task on the basis of the tools and techniques available.

Start by looking at the data-related problems. It may be that the best first task turns out to be the installation of a data dictionary. It should be because it tackles an important problem, not because "everyone is using data dictionary these days" or "we have just recruited someone who was a dictionary expert in his previous job" or whatever.

First list the likely tasks and evaluate their technical and organisational aspects. Next calculate what it is going to take to resolve those problems, the financial and non-financial cost. Then estimate what management commitment is required, and what management commitment can realistically be obtained. Finally, make the selection.

Perceived problems are problems as they appear to the managers, not necessarily as seen by the data administrator

We need to distinguish between perceived problems and underlying non-perceived problems. Perceived problems are problems as they appear to the managers, not necessarily as seen by the data administrator. The need to cut staff and costs, the need to be "in the vanguard of technical and management technique usage," the ability easily to provide information required by yet more senior management, the provision of a high safety/security margin in financial institutions – these in general terms are some examples of what we mean by perceived problems.

Non-perceived problems – ones that managers have not realised or clearly grasped yet – are obviously also of great importance. But unless they can be turned into perceived problems they cannot be the basis for the first data administration task.

So, if a company has just taken over another company, there are likely to be horrendous problems in data compatibility. But the data administrator will not get support for tackling these until management can see these problems and their consequences.

Major new plans in the company should be considered. A company reorganisation, acquisition, new market area or strategy – all can put severe strains on the current data and DP. In addition, they are hot buttons, and any data administration task that can be related to a hot button is likely to be considered with interest.

Major outside events, such as new privacy legislation, should similarly be considered. These should be broken down into specific detailed problems and listed.

The next step is to see what is required technically in solving a problem; to see what it will involve and if it is feasible.

What are the technical aspects of solving the problems? What tools, techniques and activities would be required? What use would be required of data analysis or a data dictionary? Are there any other techniques or tools required? What activities would be required to analyse the problem and propose and execute a solution?

Having identified the techniques and tools, consider their availability. Do we currently have the necessary skills already in place? If not what is the realistic time needed to develop these skills? Can we learn them in carrying out the first tasks? Can we recruit or contract to get those skills more quickly? If the lead time on the skills is very long, it may be necessary to choose other tasks in order for data administration to be seen to be providing benefits quickly.

On the other hand, if those skills are considered essential to the long-term strategy, it makes sense to start acquiring them without delay.

Thus setting up an information centre could involve alterations in the way the data dictionary is used; say requiring changes to the description text to make it more understandable to non-dp people, plus changes in access, etc.

Next, and possibly even harder, is to calculate what are the organisational aspects of the problem, and of solving it. What parts of the company are involved and in what ways? What managers would be involved, with what responsibilities and reporting structures? What person or people would be needed to make decisions? What are the personalities and views of all these people?

To calculate the effects of making changes in data, it may be necessary to carry out detailed discussions at working level with various relatively junior people, to assess the possibilities and implications. Yet, because of the seriousness of the consequences, decisions will probably be required from a number of senior managers also.

The need for discussions at the various levels must be taken into account when choosing the tasks.

Having identified these problems and having assessed the technical and organisational aspects of the problems, it is necessary to calculate what it will cost to solve them – what money, resources and time will each task require?

But that is only one aspect of the cost. It is also necessary to know the cost in terms of change in the way people do things, in terms of the controversy, in terms of having to get people to come together and agree conflicting requirements – it is necessary to calculate the organisational cost.

Many DP projects in the past have deliberately side-stepped or ignored organisational costs, e.g. by letting each function have its own product code or customer code. It is here that a data administration project may differ from most others – at least in emphasis. By its very nature a data administration project must face the organisational costs head-on.

Even in these days there are still some companies with money. Many of these would be quite happy to spend the time, money and resources to reconcile data discrepancies such as product or customer code. However, for many of them the cost in terms of the disruption and political embarrassment that would be required is unacceptable. One can spend money, but one cannot rock the boat. This leads on to the next consideration – management commitment.

Another cliche (like the one about data being a resource) is that data administration must have "management commitment." It is to succeed. This is true just as the data equals resource statement is true. What does it really mean? It means the support of individual managers, individual people who are senior to or the peers of the data administration. It means their support not just for the money, but for the disruption and controversy.

We know of an organisation where senior management caused system development to be halted while data administration set up an environment of strong centralised control of that systems development.

This paid off handsomely for them and the same degree of control may be needed in other companies, too. Without that same commitment they would not achieve that control and if they tried, they would fail.

Clearly, you must go and try for management support. If you never ask you never get. But you will only ever get so much. They will not give more until you have proved value within a given time.

Having considered the above factors, preferably writing the analysis down, you must now choose the first task. It is necessary to weigh the seriousness of the problems, the likely benefit of the possible tasks, the feasibility and probability of success.

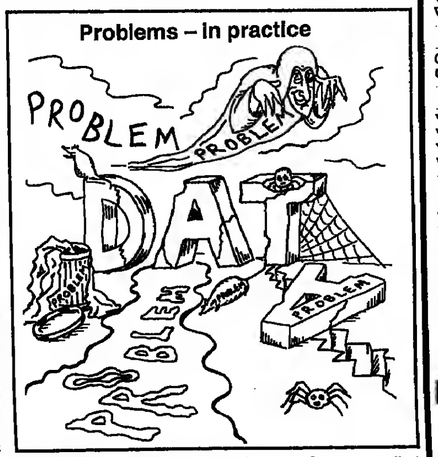
It is also important to consider time – how long until value is proven. It is conceivable that some companies would be prepared to wait five years before, say, the data dictionary is proven to be useful.

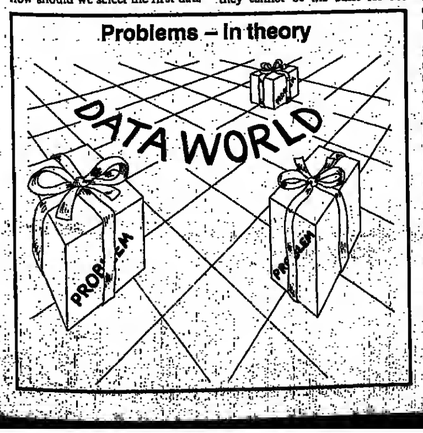
However, most managements would not, and in any case you should choose some other task which provides benefits much sooner. Then you can gain increased management commitment and go on to other tasks which build up the data administration function.

The final factor to consider is the long term opportunities opened for data administration by the task. Thus, if the company's problems require a data dictionary or the use of data analysis, a pilot project in one of these is a strong contender. For it would pave the way for many possible future tasks which would partly depend on them.

Next week, in the final article, we will consider the subsequent stages of development of data administration, the people who should staff the function and its place in the company organisation.

Richard Heagerty and Terry Smith are consultants in CACI's business information department.





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PEOPLE

■ Robert Holder (above) has been appointed managing director, United Kingdom, by AT&T International, the overseas marketing unit of AT&T. He has had a 12-year career with AT&T, most recently with AT&T Information Systems, which markets equipment and services to business customers in the US. He will live in London.

■ The Council of The Royal Society of Arts announces the award of the Society's bicentenary medal for 1983 to David Maroni who, as director of external relations for British Olivetti "has played a large part in advancing the high design standards of the Olivetti organisation in Britain." Maroni was for three years chairman of the board of governors of the Central School of Art and Design, and is currently chairman of the trustees of the Photographers' Gallery.

■ Digital Microsystems, originator of the HiNet local area network, has named Alfred (Fred) B. Pursell as director of international sales. He will be based at Digital Microsystems' Oakland, California headquarters. He was previously with Osborne Computer Corporation where he was responsible for launching the company's international sales programme and setting up a distribution network.

■ A salesman with almost 20 years' experience of office automation and business equipment has been appointed systems advisor for Hull-based Alveronic Computer Systems. Harry Homer spent 14 years with NCR, 1964-78 when he became co-director of a small micro and office equipment supply company. He remained with the firm until joining Alveronic earlier this year as software/system sales liaison officer.

■ Dale Atherton has been named by Tech-Nel Data Products, the Banbury-based manufacturer of data communications management systems, as export sales administrator. He joined Tech-Nel seven years ago as a production assistant.

■ Charles P. Spector is now Apollo's president and chief operating officer. He joined Apollo in 1980, after 12 years with Digital Equipment Corp. most recently as group meanger of the Manufacturing, Distribution and Control Products Group.

■ Burroughs Europe-Africa Division, based in London, has appointed Gunnar F. Hesse as director of marketing. He was previously director of marketing Office Information Systems, for the international division of Sperry based in London.

■ Alimand Computer Systems has appointed to its team of banking consultants Stephen Newman who joins the company with 14 years' computer experience; four years having been spent on Swift related software design and implementation in Switzerland, Germany and Belgium.

■ Stone International announces the appointment of D. Leighton Davies in a non-executive capacity to the board. Davies recently retired at the age of 55 after 14 years with Racal Electronics where he was deputy managing director of the parent company and chairman and chief executive of the Racal Data Communications Group. He will continue his association with Racal in a consultative capacity. Davies' background also includes 10 years with the Solartron Group followed by senior appointments with GEC and STC where most of his time wos concerned with the industrial application of electronics.

■ Cofex (UK) the Ascot-based supplier of boards and systems, has appointed Peter Russell as UK sales manager. He joins from Mostek where he was a field sales engineer responsibe for technical liaison with large OEMs, systems houses and other large users of microprocessors. Prior to that he was with Lock Distribution, an Oldham-based systems house which is a dealer for Mostek and other component manufacturers.

■ Consultants (Computer & Financial), a City-based software house, has appointed Simon Farmer (above) as systems development manager with responsibility for development of the securities industry related products Fiscal and Tims. He joins from Centrefile, where he was responsible for systems development in the investment management areas.

■ Continuing growth at Automation and Power Systems of Brighton has led to the appointment of Tim Worley as production manager. Formerly of Redifusion Computers, he will be responsible for production activity, material control and purchasing.

■ Paul Brankin, has been appointed managing director of Oxford Automation, makers of System 86, the microprocessor-based range of equipment for distributed monitoring and control of industrial processes. Dr Brankio has been with the Oxford Instruments Group since 1974 and was previously technical director of Oxford Medical Systems. Tim Cook becomes general manager of Oxford Analytical Instruments of Abingdon, and takes over responsibility for that company's activities in the menufacture of systems for industrial analysis and quality control.

■ Andrew Rodger has been given wider responsibilities within Computervision's European Support Centre in Hayes, Middlesex, since his recent return from an extensive management development programme at Computervision's headquarters at Bedford, Mass. He has been promoted to manager, Europe Communications, and now has corporate and strategic responsibility for marketing communications, public affairs, Press relations, user, internal and international conferences and the training of sales, support and applications engineering staff throughout Europe. He joined Computervision from the Bosch Group in 1981.

■ Datatime has appointed Joe Makin as sales manager to head its sales force, marketing Mitel PABXs, and ancillary telecommunications equipment. He has spent the past 12 years with L M Ericsson/Thorn Ericsson and has recently returned from an assignment as sales manager in Riyadh, Saudi Arabia. Before that he was London sales manager for Thorn Ericsson Private Systems.

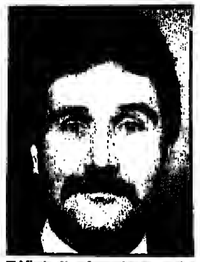
■ Counting House Computer Systems has appointed Dave O'Hara as UK sales manager. He joined Counting House as a sales and marketing executive in October 1982, and before that worked as Northern sales executive for MDSI (UK).

■ Following its acquisition by Thorn EMI, Maidenhead-based automation and robotics company Hazmac (Handling) has announced five board appointments.

John N. S. Deane (centre) has been appointed managing director, with Ashley Thomas (left) as marketing director and Christopher J. S. Baker (right) as finance director. All three have recently joined Hazmac.

The company's founders Joseph Hazleton (second left) and John MacSwan (second right) continue as executive directors: Hazleton as commercial director and MacSwan as operations director.

Deane has joined Hazmac from Lucas Logic where he was general manager. For the past 18 months, Thomas has been Thorn EMI's corporate project manager for robotics. Baker has joined Hazmac from The P-E Consulting Group, where he undertook numerous assignments in systems design and financial appraisal, both in the UK and overseas. Hazleton becomes responsible for sales and market development of both the company's traditional automated materials handling systems and enhanced robot systems for applications in the automotive industry; and MacSwan assumes responsibility for all manufacturing activities at the company's Maidenhead plant.



■ Nixdorf has formed a new major projects division to market its point-of-sale systems to retail organisations in the UK. Richard Bearpark (above) a senior Nixdorf executive, has been appointed manager. He was latterly manager of Nixdorf's London West branch.

■ ICL announces the appointment of Tim Cullinane as managing director of ICL New Zealand. He succeeds Tony Neville who is returning to a senior management position with ICL in the UK. Before this appointment, Cullinane was managing director of MDS Computer Systems based in Sydney, Australia. He previously worked in Wellington, New Zealand, as general manager of the Equipment Division of Computer Consultants and was a director of that company.

■ Tricia Carter has joined Anker Data Systems as product development manager responsible for the development of new products and liaison with software houses and computer manufacturers. She was previously product support and OEM sales manager with Omron. She has also worked for ICL and Singer Business Machines.

■ Computervision has appointed Gordon Moultrie to the newly-created post of marketing communications manager in the UK. He was previously with BOC, where he spent seven years in various publicity posts.

■ Geest Computer Services has named Mark Hallett as sales and marketing manager, and Rob Farrar as systems and support manager.

■ Ron Sayers has been appointed general manager of IMX Systems Corp (UK), the British-based subsidiary of US-based International Imacs Systems Group. Having represented the Canadian-based parent company in the UK for over a year in a consulting role, his task is to further develop the training and consulting activities of the UK company in support of the group's family of data dictionary and productivity tools.

■ Alan Redhouse has been appointed managing director of Eyetech Security Print, the Teesside subsidiary of Norton Opax of Leeds. He has been marketing director since the company opened 10 months ago. He was previously a senior sales executive with Sperry Computer Systems. Eyetech has also appointed Jim Errington as technical sales manager and Paula Ware as sales manager. Errington was formerly with Warner Electric and Ware joins from Goldsmith Computing.

■ Dataproducts Corp announces the election of Glenn E. Penisten and Jack D. Steele to its board. Penisten is chairman of the board of American Microsystems Inc, a subsidiary of Gould, and board chairman of the American Electronics Association (AEA). Dr Steele has been Dean and Professor of the School of Business Administration at the University of Southern California since 1975.

■ Appointed menaging director of Holland Automation Interoational (UK), David Change, joins the company from Advanced Digital Office Systems (ADOS), where he was a founding director in 1980, and subsequently its menaging director. Before that he was systems and programming director with Bunzl Data Systems for three years. He also spent three years with Systime, and ten years with Pilkington Brothers.

■ Corporate Modelling Consultants, a specialist financial modelling systems house, has set up a new sales office in York, headed by Christine Carter (below) manager of Corporate Modelling's North of England and Scotland sales region. She has nine years' experience in the computer industry, firstly in London and Brussels for ADP Network Services as a technical consultant and then as a sales executive. Her next job was with Generale de Service Informatique, a computer time-sharing service, and she worked first in London as manager of the London sales district and then in Paris, as business development manager.

■ Newbury Data Recording has appointed John French as national account sales manager. Before joining Newbury Laboratories in 1976, he was a sergeant in the RAF.

■ Precision Software, which specialises in software development for the Unix operating system, has appointed Kaye Maclake as senior analyst programmer. She was previously an analyst/programmer with GTE, specialising in sales order entry work on the Data General Eclipse range. She also spent two years with Leasco Software again as an analyst/programmer involved in development work.

■ Michael O'Connell, has been appointed national sales manager of the newly-formed Business Systems Division of Chubb Cash Registers. He was a service engineer with Gross Cash Registers at the time of the Chubb takeover.

■ Alan Steeae, has joined Mastercare as materials manager. He was previously spares manager at Hitachi in the UK and prior to that materials manager at Dixons Photographic.

■ See pages 32-33 for this week's new products.

■ Derek Kellett (above) has joined Rediffusion Computers as a senior territory manager for the OCR sector. Previously he was with Beam Business Centres as business centre manager, 1981-1983; CMC as a territory manager 1980-1981, and Datasaab as sales manager for three years. Brian Coote has been appointed Rediffusion Computers' branch manager for the London South branch. He was previously with Wilkins Computer Systems as a director; and from 1976-82 was a salesman at IBM (UK).

Adrian Waters, who has obtained an upper second class honours degree at Brunel University, Uxbridge, joined Rediffusion Computers in October 1979 as a sponsored student and took a four-year BSc course in computer science. He is now based at Crawley as a programmer in the advanced product planning department of Rediffusion Computers. Waters (left) is pictured with Gordon Peake, technology director, receiving a presentation for the successful completion of his course.

DIARY

NOVEMBER 24-25
Fault Tolerant Computing, a Xephon seminar for DP managers, operations managers and technical services managers in IBM installations which require systems with 100% availability. Holiday Inn, Swiss Cottage, London. £370. Further details from Mary Haines on (0628) 74922.

NOVEMBER 30
CAD Modelling seminar, Computational Mechanics Centre, Southampton. Further information on (0421) 129-3223.

DECEMBER 1-2
Viewdata for IBM Users. Xephon seminar for senior DP and information systems management. Berners Hotel, London. £370. Further details from Mary Haines on (0628) 74922.

DECEMBER 5
Expert Systems – the Challenge for Information in the 90s. Royal Aeronautical Society, 4 Hamilton Place, London W1. £70, or £60 for members of Aslib. Further details from Aslib, 3 Belgrave Square, London SW1X 8PL.

DECEMBER 6
Detailed Seminar for data processing managers. Vereation, Peter Small have joined Hardata plc W1. 9.30am. Further details from Mike Park/Bobbi Davy on 01-831 6131.

DECEMBER 12-14
The Information Centre. Technology, Implementation and Control. Royal Hotel, London. £[illegible] + VAT. More details from Brenda Sullivan, 01-486 0334/5.

THE RICHARD PICK AWARD

Not many people have an operating system named after them. Richard Pick has, and as the originator of the multi-user operating system that bears his name, has been called a technical wizard.

His Pick operating system (known as Pick) has numerous devotees but it has only recently started to win over and attract a wider following.

To stimulate interest in Pick, Electronic Data Processing (EDP) of Sheffield, one of the earliest large scale users of Pick, is offering £3,000 in price money to the individual who can best explain the merits of Pick.

A review of Pick, and details of the competition, and a coupon are set out below.

Pick out Pick's merits and win a £1,500 prize

LISTENING to many Pick users is like listening to people who have undergene a religious conversion. The enthusiasm is tangible. There are installations worldwide and approximately 1,000 in the UK yet many data processing managers are unaware of the Pick system and its attractions.

Vendors, despite impressive user lists, have not been successful in gaining for Pick the market recognition which, for example, Unix has achieved. Only in recent months, with the entry of numereus new Pick vendors, has interest begun to burgeon.

To heighten the interest and promote Pick awareness, Electrooic Data Processing (EDP) of Sheffield, which has the exclusive distributorship fer the Mentor implementatien of Pick, is offering £3,000 in prize meney to winners of what it calls the Richard Pick Award. See details in the panel on this page.

The Pick operating system has its beginnings in the early 1960s but it was not until the early 1970s that the first commercial implementation was completed. The Microdata Corporation had a process control computer, and saw an opportunity to increase the market for its machine by implemeoting Pick and turning it into a business system – the Reality.

It was marketed in the early and mid-1970s by Microdata's then agent company in the UK, CMC.

Microdata gained substantial numbers of users worldwide, and made Pick users eager for more diverse systems. Those users with the largest investment in Pick application software – mainly US based Microdata dealers – began to seek alternative hardware on which Pick could be implemented.

One of the first was a Prime system called Information. It was net produced in conjunction with Pick, and is consequently somewhat at a tangent to mainstream Pick. Information also requires the presence of the Primes operating system, and therefore a large machine to run even a few terminals, and has not to date sold in large numbers.

Much more successful has been the implemeotation of Pick on Honeywell Level 6/DPS6 by the Ultimate Corp. Ultimate was formed by a number of former Microdata dealers.

Level 6/DPS 6 hardware architecture, however, is actually more powerful than the Pick operating system requires. This caused a number of manufacturers to believe that a machine built specifically to run Pick could be brought to market at much less cost than Ultimate.

The first of these was Applied Digital Data Systems Inc. (ADDS), a wholly owned NCR subsidiary, which launched its Mentor family in mid-1981. ADDS appointed EDP as its UK distributor, and Mentor was launched here in September 1981.

Other Pick implementations have followed in rapid succession. Ultimate responded with its 1000/2000 range. Datamedia, General Automation and Pertec have all recently introduced versions, and there are now no less than three implementations on IBM equipment – the PC, Series 1 and 4300 models.

Pick enables multiple users to enter, instantly retrieve and update any information stored in the online database. Users interact with the system via local or remote terminals, accessing files that may be private or shared. The highlights of the systems are:–

■ A virtual memory operating system which permits addressing of disc storage and allows main memory to be dynamically assigned.

■ A database management system which is an integral part of the O/S and provides an extremely high level of performance.

■ Data storage in a three dimensional veriable length format which may vary dynamically in size, making it exceptionally easy to change the size of or add data to a file.

■ A hierarchical file structure providing efficient disc utilisation, fast data access and selectable levels of data security.

■ Record access directly via the item-id, sequentially using a hashing technique or in sorted sequence.

Many systems now boast user-friendly report generation tools, but few match the Pick query language, variously termed English, Recall, Access, Info, and others. English is a dictionary driven database enquiry language with free form syntax, simple enough for non-programmers to use, yet powerful enough to allow the instant generation of almost any kind of report from the database.

The main programming language is Data Basic, which is an expanded superset of Basic.

Over the years many development tools have been introduced by Pick software sources, and the best of these are in the course of becoming complete system generators. EDP's version, ImpleMentor, for example, can be used by non-programmers to generate a database, and both input and output programs. The input program can contain normal data validation checks and output programs handle complex formatting.

Currently, most R & D dollars and pounds in Pick software are being spent on the completion of system generators, which will allow the user to define his specification at the screen and then generate efficient code.

One of the factors giving Pick its strength in the commercial market is the existence of a wide range of "vertical market" applicatinns which can be easily tailored.

There is a wide range of applications software running under Pick. Most Pick sources have the standard commercial routines – ledgers, modelling and word processing – and some vendors supply these basic modules with the hardware configuration.

PICK . . . Called a technical wizard.

THE RICHARD PICK AWARD
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The prizes will be awarded for original essays of 2-4,000 words which describe in layman's terms the benefits of the Pick operating system to the end-user. Competitors must be currently employed at a Pick user site or have been employed at a Pick user site at some time between now and January 1, 1981. Employees of EDP, *Computer Weekly* and DMW are not eligible.

Closing date for entries is January 27, 1984.

Entries will be judged by: James Martin, DMW Group chairman and an internationally known consultant on database systems, M. I. Jameson – EDP technical director, and The Editor, *Computer Weekly*.

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Reed Exhibitions has organised an impressive promotional programme for 'The Computer Trade Show '84' with direct mailings to selected visitors to the COMPEC series of exhibitions and to the entire circulation of the sponsoring magazines. Editorial previews of the exhibition in the sponsoring journals will ensure that interest in the show is at its height in the crucial period just prior to 'The Computer Trade Show '84'.

With this kind of backing it is no wonder that an important number of computer companies, like *Digital Equipment Company, Perkin Elmer, Rode, Norsk Data, General Automation, Rediffusion, Gerotek, Newbury Data and Multicomputer*, have already booked stand and space at the show. So if you want to be sure of meeting thousands of business buyers with bulk purchase at the forefront of their minds you must reserve your stand space at 'The Computer Trade Show '84' by clipping the coupon below, or better still phone Gillian Johnson on 01-661 3125 NOW!

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as detailed in the outline programme. Full information on the speakers and their topics is available on request, and will be sent to all attendees upon registration.

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Conference Programme

7 February 1984

Day 1 Morning

Chairman's introduction
David Fairbairn, Director, NCC

Most significant trends
Mike Reidy, Senior Consultant, IDC Europa

Systems Architecture – the options
Will Zachmann, Vice President, Corporate Research, IDC
Single, tandem or multiple processing
Choice of operating systems for multiple processors
Separation of data handling procedures
(database, dataflow, file servers)

Afternoon

Chairman's introduction
David Craver, Editor, Computer Weekly

User Software – the options
Reg Boot, Group Director, Training and Software, NCC + Research IDC
Package or custom
Choice of software development tools and standard methodology
Fons Kuypers, Consultant, IDC
Are program generators viable and usable?
Expert systems for users?

Human Interface – the options
David Hebditch, Consultant
Keyboard/voice input; multifunction workstations; computer graphics
What value are multifunction workstations (LISA etc)?
Are computer graphics important,
is colour necessary and how important is resolution?

8 February 1984

Day 2 Morning

Chairman's introduction
Peter Rowell, President, IDC, USA

Human resource – the facts
Dr John A. G. Thomas, Publishing Director, Computer Weekly
Deputy Managing Director, Electrical-Electronic Press.
John Griffith, Group Director, NCC
Salaries and trends;
staff turnover, finding, training and keeping good staff;
role of the IT supremo; concept of the Information Centre

Communications – the options – 1
Martin Healey, Professor of Microprocessor Engineering, University College, Cardiff
Local Area Networks Star. Ring. Ethernet.

Afternoon

Chairman's introduction
David Fairbairn, Director, NCC

Communications – the options – 2
Professor Martin Healey
Dr. Peter Scott, Senior Consultant, Product Strategy Group, NCC
Wide Area Networks (WAN)
Location of people, data and processing
The modern PABX
Appropriate protocols for Viewdata
Teletex
The standards issue
Keith Bartlett, DOTI
Intercept Strategy
Users of the world UNITE!

Panel Discussion

Application of AI – the options
Brian Oakley, Director, Alvey Programme

Chairman's Summary

Full conference details will be sent to all delegates upon registration, complete with accommodation and travel arrangements. The conference fee of £365 + £54.75 VAT includes morning coffee, full lunch and afternoon tea on both days, as well as documentation.

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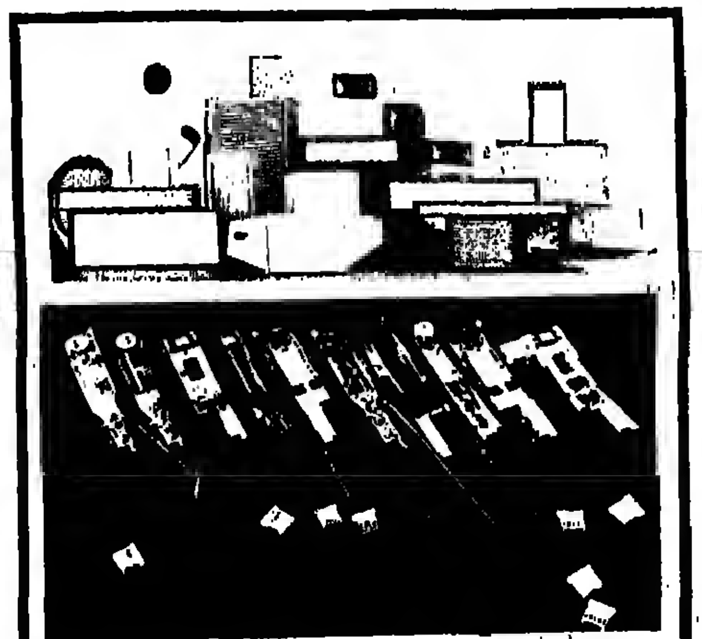

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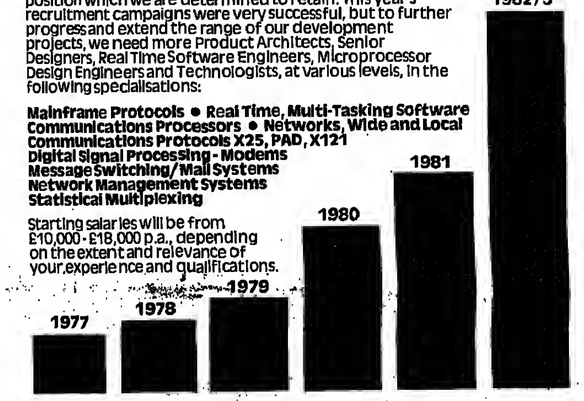

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The increased scope of our activities, and the investment we make in R & D, means we can confidently predict continued growth, and thus your rapid career progression.

Call **Chris Burns,** our Personnel Officer, on **(0923) 33500.** Ask to speak to one of our development managers in your area of specialisation. Or arrange a time to visit our office, and see for yourself how far in advance we are. Alternatively write, for further details, to him at:

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Program standard EPROMs

WITH the new PMS-8100 portable programmer, Siemens claims to offer the user a universally applicable, low-cost, portable unit for programming standard EPROMS. The compact, easy-to-handle programmer is suitable for laboratory use in conjunction with Siemens' PMS-T85S testing and development system.

The EPROM programmer is intended to be used as an extension of the Siemens SMP microcomputer expansion board system. The EPROM type and the required commands are entered via the programmer's keyboard. The repeat key provided can be used to enter repeat commands.

The current configuration of the PMS-8100 allows the programming of six EPROM types (2516, 2716, 2732, 2732A, 2764 and 27128). Four minutes is the programming time for an SAB 27128, including the implementation of a high-speed programming algorithm.

This programmer is housed together with its switchable power supply (100/220V, 60/50Hz), in a metal case. Typical power consumption is 19VA at an ambient operating temperature of 0–40°C. The unit measures 253×175×75mm and weighs 2.5kg.

The PMS-8100 is easy to handle.

Siemens (CW), Siemens House, Windmill Road, Sunbury-on-Thames, Middx. TW16 7HS. Tel: (09327) 85691.

Transmit voice with data at the same time

SOFTWARE Science is marketing the Datavoice data communications system, which provides simultaneous voice and high speed data transmission on existing PABX lines.

The Datavoice was developed and manufactured by A/S Elektrisk Bureau, a Norwegian telecommunications specialist. Software Sciences practically has worldwide distribution rights to the product.

The Datavoice simply plugs into the standard British Telecom telephone socket, enabling telephones and data terminals to share that single telephone line.

Speech and data are transmitted from the subscriber on the telephone line to the PABX room where another Datavoice station unit is placed, to separate the speech from the data.

This unit can be supplied in a similar box to the subscriber unit, but for larger users, a 19in magazine containing up to 10 station units plus power supply is available.

Five magazines can be mounted in a cabinet, and more cabinets can be added if required.

Datavoice gives full duplex high speed transmission of data up to 19,200 bits per second, in asynchronous or synchronous mode over a two-kilometre radius without affecting the normal functioning of the telephone or PABX, says Software Sciences.

The number of data terminals that can be connected through Datavoice is unlimited. A user can start with a single point-to-point Datavoice connection and add new subscribers according to requirements.

Mike Shone, managing director of Software Sciences, says: "We anticipate a large market for the Datavoice, which can solve a lot of problems.

"For example, installing data terminals, or moving them round the office, traditionally incurs expensive cabling – there is no such cost with Datavoice.

"And if you move offices, you simply take your telephone, terminal and Datavoice connection with you and plug them in at the new site.

"Secondly, the architecture of an office building may make conventional cabling impossible, but Datavoice will create a local area network anywhere that has an installed PABX."

The Datavoice is one of Software Sciences' range of office automation products, which also includes the Xionics set of integrated communicatioo systems.

Software Sciences is one of the UK's leading systems and software houses with more than 12 years' international experieoce of advanced software development and effective implementatioo.

The company has over 600 professional staff and is part of the Thorn EMI information technology division.

Software Sciences (CW), Abbey House, 282/292 Farnborough Road, Farnborough, Hants. Tel: (0252) 544321.

Designed with travel in mind

A MULTIBUS-compatible industrial portable computer (IPC) for single-user, multi-tasking applications in industrial and scientific environments is being marketed by Arrow Computer Services. The unit, ruggedly packaged in a metal casing, is designed with travel in mind and fits under a standard aeroplane seat.

Manufactured by Monolithic Systems and designated the MSC8807, the IPC incorporates the Intel iAPX 186 processor. The system is forced air-cooled and includes a 9in screen, two 3.5in (Sony format) microfloppy disc drives each with 409 Kbytes formatted storage capacity, six-slot Multibus chassis, and a 100w power supply.

Three of the Multibus slots are taken up with systems boards, and the other three are available for expansion. An 83-key ASCII detachable keyboard is contained within the lid. The keyboard has a numeric keypad and 10 special function keys.

A control panel under the screen contains power and system-reset switches, and a screen-brightness control. The rear panel contains I/O connectors and AC input/output connectors.

Monolithic Systems' MSC8807 marketed by Arrow.

The three spare Multibus slots mean that Multibus-compatible devices such as expansion memories, controllers and high resolution graphics, can be added to the IPC without modification. Both 8- and 16-bit devices with up to 24 address lines can be used.

Additionally, an on-board iSBX bus interface connector permits the use of 8- or 16-bit Multimodule piggy-back boards which are available with a variety of I/O and expansion capabilities. These include parallel or serial I/O, fixed or floating point numeric co-processors, and analogue operation.

Arrow Computer Systems (CW), Arrow House, Blenheim Road, Longmead Industrial Estate, Epsom, Surrey KT19 9BA. Tel: (03727) 42557.

Bull launches 90 pages a minute printer

BULL Peripherals UK has introduced what it claims to be the first high-speed magnetic printer commercially available to the OEM marketplace. The MP6090 performs at a speed of 6,000 lines per minute (90 pages-per-minute) and uses perpendicular recording technology to produce 240x240 dot resolution.

Designed and manufactured in France by Bull Peripheriques, the MP6090 is the first of a family of non-impact printers which will use virtually identical components.

Three primary Bull proprietary technologies are employed by the printer: A magnetic drum used in conjunction with perpendicular recording heads, and a single-component magnetic toner.

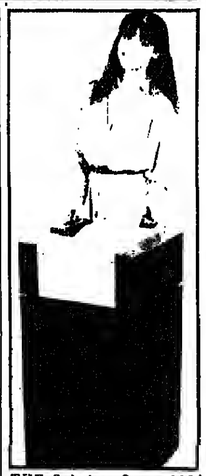
In operation, the magnetic recording heads record information on the magetic drum. The drum rotates through the single-component toner, which is attracted to the magnetised regions on the drum. The toner, and thus the information, is then transferred to continuous fanfold paper by a pressure-roller.

The MP6090 has been designed to allow the operator to perform scheduled head cleaning. Planned maintenance by trained personnel has been reduced compared to competitive high performance non-impact printers.

The system is offered with a line printer emulation capability which permits standard line printer formats, using multiple fonts in both landscape (horizontal) and portrait (vertical) directions.

The MP6090 uses blank or preprinted fanfold paper, 7in to 15¾in wide. Standard features include from 10 to 15 characters per inch, with 90 degree page rotation and 6x10 lines per inch, four sets of 96 characters.

Bull Peripherals UK (CW), Kingswick House, Sunninghill, Berkshire SL5 7BL.



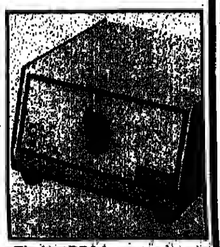
THE Scimitar Super 3104 Electronic is a new general office shredder which can handle more than 10 streams of continuous stationery, and doubles as a data shredder. It is introduced by Business Aids. Tel: Sunbury-on-Thames 81758/9.

Sharing resources

THE DRS5 data route selector made by Aims of Milton Keynes allows micros and other data processing equipment to share resources at the turn of a switch.

This top-of-the-range model costs £96 plus VAT and allows one common cable to be switched to any of four other data routes.

The DRS5 uses industry-standard RS232 female sockets, but the Aims range of data route selectors also includes models with IBM-compatible female co-axial sockets.



The Aims DR5 data route selector.

Aims (CW), 25 Potters Lane, Kiln Farm, Milton Keynes MK11 3HG. Tel: (0908) 562953.

The model 1030 editing keyboard.

Keyboard lets user sit back

PHILIPS has introduced an editing keyboard for viewdata terminals, the model 1030, to replace the model 1039.

The new model retains all the features of the 1039 – standard layout, separate numeric pad, graphics and colour keys – plus a number of new features.

The 1030 permits full operation of the Philips 3607 viewdata terminal, without the need to use the terminal's keypad. This allows the user to sit back and concentrate on the keyboard alone.

The Philips 3607 has 14 pages of memory which can be used for preparation of response frames and mailbox messages off-line.

A line hold facility gives the user of the 3607 the ability to use the off-line features of the terminal, whilst maintaining connection to the viewdata computer. This allows last-minute changes to pages, for example, before or during transmission of information on-line to the computer.

TMC (CW), Philips Business Systems Viewdata Division Road, Maidenhead, Berks SL6 (06662) 2121.

CYNTHIA D 500 DISC UNITS:

The Cynthia D 500 range of 5 1/4" disc units, with six models from 6 to 72 Mb, offers the right capacities and performance for all applications :

• The Cynthia D 505 and D 510 units are intended for all existing microsystem applications, with capacities of 6 and 13 Mb and a standard access time of 70 ms.

• The Cynthia D 520 unit, which consists of two discs, one fixed and one removable, has a capacity of 13 + 13 Mb. It is one of the first units of this type introduced on the OEM market. It is both a mass-storage and an operating unit, with an average access time of 40 ms.

• The Cynthia D 530, D 550 and D 570 units have an exceptional storage capacity – 31, 51 and 72 Mb – in a 5 1/4" standard volume and a very short access time of 30 ms. They are intended either for large memory applications, or for multitask or multiuser applications.

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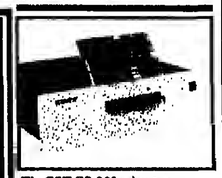

The CST CS-300 subsystem.

Back-up for LSI-11 users

A STREAMING tape subsystem which provides the DEC LSI-11 user with up to 55 Mbytes of back-up storage for large capacity Winchester disc drives is announced by Computer Storage Technology.

The CST CS-300 subsytem uses a CC-300 peripheral processor and a ¼in cartridge tape streamer based on the new QIC-02 cartridge interface of the Archive Sidewinder of Cipher Quarterback tape drives. The subsystem also includes a ¼in tape cartridge as the high-capacity storage media.

Computer Storage Technology (CW) 1369 S. State College Blvd, Anaheim, California 92806. Tel: 714/778-3656.

Choice of 128 styles

THE versatile Epson RX-80FT matrix printer, now available from peripherals specialist PHL of Solihull, has many new features, of which perhaps the most impressive is the selection of 128 character styles. Printing speed is 100 to chps for high throughput, or 50 chps in quiet-mode for office use.

Sub- and superscripts and auto-underline are available. There are six programmable bit-image graphics modes, which can be mixed in any combinations on a single line.

The RX-80FT has both friction and tractor feed, accepting pin-feed paper from 4in to 10in wide, and cut sheets and rolls up to 8½in. A Centronics interface is supplied as standard, with a range of other interfaces including IEEE488 and RX-232C available as options, allowing connection to almost any system.

Peripheral Hardware (CW), Unit 13, Monkspath Industrial Park, Highlands Road, Shirley, Birmingham, B90 4NY. Tel: 021-745 3033.

The Seagate ST212 12Mbyte half-height Winchester drive

12Mbytes on a disc

DESCRIBED as the first single-platter 12 Mbyte half-height 5¼in Winchester disc drive to incorporate low-mass minislider ferrite read/write heads for improved shock protection and increased track densities for faster average access times, is announced by Seagate.

The ST212 is designed for portable computers and desk-top systems, and will withstand almost twice the shock specification of standard-height drives.

It operates at an average access time of 65ms.

The drive is priced at $690 in 1,000-lot quantities. Single unit pricing is $1,265.

Seagate Technology (CW), 920 Disc Drive, Scotts Valley, California 95066. Tel: (408) 438-6550.

FTB

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CICS Training

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The main involvement is with new development, undertaken in project teams, providing extensive opportunities for gaining experience in different areas. For candidates with no CICS experience full training will be offered.

Candidates must be conscientious and keen to develop their career path with the guidance of this highly successful company.

Salaries are aimed at recruiting and retaining high quality staff, and are backed by fringe benefits that would be expected of a company of worldwide repute.

For additional details of these very interesting positions, please contact in complete confidence:

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0844 53531 (evenings)

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IBM IMS DB/DC COBOL SENIOR ANALYST/PROGRAMMER
IBM SY/36 RPGIII MAAPICS PROGRAMMER
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IBM MVS COBOL CICS PROGRAMMERB

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ICL VME IDMS COBOL PROGRAMMERS
ICL VME COBOL IOMS TPMS PROGRAMMERS
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TECHNICAL AUTHORS

Computer Search and Selection,
Hamilton House, Marlowes,
Hemel Hempstead, Herts HP1 1BB.

Computer Search and Selection,
6th Floor, Carolyn House,
Dingwall Road, Croydon, Surrey CR0 9XF

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Our Systems Department is vital to our on-going success and is rapidly expanding to satisfy business growth. We are currently changing from ICL to IBM hardware and our present configuration comprises IBM 3033 and Atlas 10 mainframes.

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As the "custodian of technical standards", your prime responsibilities will be to co-ordinate the introduction of the new methodology and train staff in its use; develop, implement and maintain the system standards and design and implement the supporting documentation.

You should have at least 5-6 years' programming and systems experience plus a real interest in training and the development of professional DP standards. Good communication skills, a "hands on" approach and the ability to carry ideas through to fruition are essential. An O & M background could be useful. Career prospects are attractive in a rapidly developing environment.

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Retail Profit	59,314	46,246	+28.3%

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Systems Engineer

Berkshire **to £13,000**

MARS ELECTRONICS One of the fastest growing electronic groups in Europe, renowned for its technical excellence within the markets it serves, is introducing one of the most advanced CAD systems into its head office at Winnersh.

To assist with this introduction they are looking for a computer professional who will interface between the users and the computer system and provide technical back-up on a day to day basis.

Applicants will have an engineering background together with a strong bias towards software. Experience of Fortran, PL1 or PLM gained on 32 bit computers would be an added advantage.

Candidates will be able to implement system management procedures, advise users on queries or problems and develop and streamline their working techniques.

It is essential that you have good communication skills and have a positive attitude to CAD.

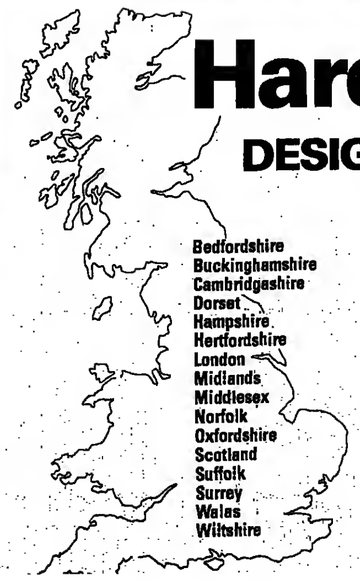
The company has extensive plans for future development of Computer Aided Engineering therefore long term career opportunities are excellent.

Please contact: David Headry

CADsearch, London House,
271-273 King Street, London W6 9LZ.
Telephone: 01-741 8011.

MODUS

Modus Management Services Limited
19 West Street, Dunstable, Beds. LU6 1SL
Telephone: Dunstable (0582) 608002



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Computer Professionals

Scientific Systems
London and Surrey — Up to £15K

A leading UK consultancy requires additional professional staff at varying levels. Candidates must possess a tertiary qualification and have experience in one of the following: Digital Electronics, Simulator Design, Navigation Systems, Avionics or Acoustics. Excellent prospects in a growing organisation. Ref: 1011 A

Univac 1100 Analyst/Programmer
East London — £11K

Subsidiary of a major group developing new on-line systems has a vacancy for an analyst/programmer to join the project team. Good Cobol skills and current 1100 Operating System knowledge are essential for this position which has excellent prospects. Ref: 1011/B

Firmware Programmers/Proj Leader
Berks — £8-£13K

An established micro-mini consultancy is continuing the growth of its R&D Division. Vacancies exist for graduates with two or more years programming experience of real time applications. Knowledge of block structured methods and hardware/software system design is essential. Excellent career prospects. Ref: 1011/C

Design Engineers
South Herts — £12.5K

These positions are only for outstanding candidates who are commercially aware and able to motivate others. In addition to high technical achievement in TTL and microprocessor design work, candidates must have a thorough understanding of programming and software techniques. Relocation offered. Ref. 1011/D

Technical Support
Surrey + European Travel — £10-£15K

Two people (more soon) are required by this established peripheral manufacturer and supplier who is launching a new 16 bit (IBM PC compatible) desk top business work station. Experience of dealer support with knowledge of both hardware and software is required. Ref: 1011/E

Customer Engineers
London Area — £9-£10K + car

Our client has an established range of business mini and micro-computers. The requirement is for CEs with one-two years' experience of hard disc based systems looking for a position with real scope to achieve technical satisfaction and rapid promotion. Applicants need a good understanding of Customer Relations. Ref: 1011/F

Design Engineers
South and North London — £8-£12K

Highly successful British manufacturer of single and multi-user micros has vacancies for talented engineers with at least one year's design experience of microprocessor based products using the latest chip families. Knowledge of operating systems, networks and communications techniques advantageous. Ref: 1011/G

Senior Analyst/Programmer
Central London — Up to £14K

Hugely successful systems organisation needs several embryo consultants to work on implementation projects. Above average skills are sought for the above average rewards and opportunities for career progression that are offered. Ref: 1011/H

Sales Support
London and West — £11-£14K + car

Experienced systems engineers accustomed to providing software support, who understand pre-sales work and have knowledge of advanced applications such as CAD/CAM, Office Automation and Transaction Processing can be offered excellent career prospects. We have several clients with vacancies for candidates of the right calibre. Ref: 1011/J

System 34/38 Analyst/Programmers
West London/Surrey — £10-£17K

We have several clients with vacancies for IBM GSD specialists. Knowledge of MAAPICS or COPICS together with RPG programming skills is the basic requirement. Candidates with the appropriate personal qualities, including mobility and motivation, will be considered for consulting posts. Ref: 1011/K

Original Software
Herts/London Border — £9-£14K

Systems software engineers are needed to work on new microprocessor based communications products. Assembler level programming on 8080, Z80 or 6800 is essential for some positions while experience of 'C' PLM, Unix or RSX11 with Macro 11 is suitable for others. Excellent working conditions, relocation and a very stimulating environment offered. Ref: 1011/L

Analyst Programmers
Middx — £10-£14K

Our client specialises in transaction processing and networking systems on Tandem computers. New orders necessitate additional staff to work on Electronic Funds Transfer, Message Switching, Reservation Systems and Videotext Services. Candidates must have sound COBOL, ASSEMBLER or PASCAL experience and training will be provided on TANDEM COBOL/TAL. Ref: 1011/M

Customer Support Engineer
Surrey Border (Some European Travel) — £10-£14K + car

A well-established supplier of packaged software for the HP3000 computer is seeking a dedicated professional to provide technical support and education services to customers and distributors in the UK and Europe. Candidates must have in-depth experience of HP3000 hardware and familiarity with programming productivity aids is desirable. Ref: 1011/N

Real Time Applications
Surrey Border — Up to £17K

This systems house is seeking computer professionals capable of responding to a variety of technical challenges. Ambitious Analyst/Programmers with a degree and three years' experience of defence, information or industrial real-time applications would be of great interest. Familiarity with Assembler or real-time applications would be of great interest. Familiarity with Assembler or real-time/mathematical languages is desirable. Ref: 1011/P

(8658)

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S. London

Required by our South London based client. Management potential, ICL, good George 3 and solid COBOL are essential to join the financial team. Experience of modular techniques desirable. Ref JC

ICL COBOL Programmers
£8,000 – £12,000
South

Applications are welcomed from programmers with 12 months minimum experience on ICL COBOL as we have clients based London, Essex and Bucks, requiring all levels of staff. Some opportunities offer training to other hardware for successful applicants. Ref JC

ICL COBOL
£11,500 +
London

Senior Programmer is sought by London based installation. Good VME experience with solid COBOL required. Management expertise and IDMS/TPMS would be advantageous. Ref JC

DEC PDP/VAX
£8,000 to £15,000
South

Any experience of COBOL, BASIC + or + 2 (RSTS, RSX, VMS) on commercial systems is sought by many of our clients who have their installations in Central London and the Home Counties. Programmers and Analyst/Programmers are sought to Project Leader level. Ref BH

IBM TP/DATABASE
£10,000 to £16,000
All areas

On-line experience is in demand and keenly sought by most of our clients who utilise various hardware (IBM 4300, 303X, 308X) and operating systems (DOS/VSE, VM/CMS, MVS, XA). Any experience of CICS (upwards of 6 months) DL-1, IMS, ADABAS, TOTAL, MANTIS, ENVIRON from Programmer to Senior Analyst level. Ref BH

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Contact Bruce Harrington (Ref BH) or Julie Caan (Ref JC) on 01-630 1433.

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IBM Assembler
£7,000 to £10,000
London

We have several clients who are seeking around 12 to 18 months experience on IBM DOS and MVS systems. You will have the opportunity to retrain either into Systems Programming or move to COBOL (CICS/DL-1) or PL-1 on the applications side. Ref BH

UNIVAC 1100
£9,500 – £12,000
South

Several of our clients based London, Essex and Bucks are requiring all levels of staff from Programmers to Analysts. Univac 1100 experience is desirable but applicants with on-line database COBOL on any other hardware considered. Ref BH

IBM COBOL
£7,500 to £11,500
South

If you have 1-2 years (or more) COBOL on IBM (DOS or OS) mainframes and wish to extend your experience and gain training in on-line database systems (CICS, DL-1, IMS DB/DC, ADABAS) then we have a large number of clients, in the South of England who will offer genuine opportunities to retrain. Ref BH

Analyst
£11,000 + Car
City

A City based company, heavily committed to the totally automated office are currently seeking an experienced Analyst who has been involved in complete micro systems with 2 years minimum experience. Ref JC

PL-1
£9,000 to £14,000
London

Programmers and Analyst/Programmers with upwards of 12 months PL-1 on any IBM hardware are sought by a range of different installations in the London area. DOS and MVS experience are equally sought and most sites offer on-line training. Ref BH

Systems Analysts
£9,000 to £13,500
London

Our client requires several analysts from Junior to Senior level and will consider any machine background to work on IBM 4341 (DOS/VSE, CICS, DL-1, COBOL). Commercial systems experience of 2 years upward and any on-line experience would be a bonus. Ref BH

[illegible]

Designers [illegible]

£12K Basic + Guarantee + Commission + Car
West Yorkshire

The company is the computer systems subsidiary of an internationally famous group who have a turnover in excess of £30M.

For a number of years they have run a highly profitable computer services company. In order to further enhance their progression, they have recently been appointed as a distributor by a leading American manufacturer to sell a complete range of mini computer systems, together with a fully supported and comprehensive selection of proven packaged software solutions.

This is a ground floor opportunity to spearhead this company's sales development and represents real potential for the successful candidate to progress his or her career into sales management.

For an informal and totally confidential discussion please telephone the advising consultants on **061-236 1157** during business hours. Weekends, and after business hours until 9.00 p.m. telephone **Roy Torres on 0422 823153 or Jeff Walton on 061-962 0002.** Interviews will be conducted locally.

INTERFACE
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(8664)

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Our client, a major U.S. Corporation, is responsible for the development of a new sophisticated Nationwide Switching System to provide communications facilities between the major U.S. airlines.

Applicants should have five or more years' experience using mainly Assembler language, knowledge of PASCAL and COBOL would be an added advantage, they should also have worked in an operating systems or communications development unit. The ideal would be to have worked on a Packet or Networking development or on systems such as:

PTARMIGAN, SYSTEM X, MASCOT, BATES, BRUIN, EPSS/PSS, SDLC, ATA, IATA, X25, IPARS, PARS

For further information please contact Jenny Dalrymple-Hay or Ian Murray West on 01-493 2947, 8am-10pm, quoting reference 5030.

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COBOL + CICS	PROGRAMMER
COBOL + OS/MVS + IMS DB/DC + TSO/SPF	ANALYST/PROGRAMMER
COBOL + OS/MVS + TSO/SPF	ANALYST/PROGRAMMER
COBOL	ANALYST/PROGRAMMERS
COBOL + OS/MVS + IMS/DB + ADF ± TSO/SPF	PROGRAMMERS
COBOL + OS/MVS + IDMS ± TSO	PROGRAMMERS
COBOL + DOS/VSE + DL/1 + VSAM	PROGRAMMER
COBOL + VM/CMS + DOS + CICS + APL	PROGRAMMER
[illegible]	[illegible]
[illegible]	[illegible]
SYS 34/38 ± RPGII	ANALYST/DOCUMENT
VM/CMS + VS/APL + GRAPHICS	SOFTWARE PROGRAMMER
OS/MVS + TSO/SPF + PDF + CLIST	JCL WRITER
ASSEMBLER + DOS/VSE + TOTAL + CICS	SYSTEMS PROGRAMMER
[illegible]	SYSTEMS PROGRAMMER
OS/MVS + CICS + ASSEMBLER + KNOW. OF DL/1 + VTAM SYS.	SYSTEM PROGRAMMER
[illegible] COBOL/FORTRAN [illegible] NIGERIA	DBA/ANALYST/ SENIOR PROGRAMMER

ICL

2900 ± IDMS	ANALYST
[illegible]	D.B. DESIGNERS
2900 + VME + 03 + MTS + COMMS	OPERATIONS MANAGER
2900 + VME + COBOL + IDMS (X) + TPMS [illegible]	PROGRAMMER/ ANALYST/PROGRAMMER
[illegible]	TECHNICAL SUPPORT/SOFTWARE DEVELOPMENT
2900 + VM/B (2900) ± COBOL	OPERATIONS CONSULTANT
2900 + DM1/IDMS/TPMS + X25	PROJECT MANAGER/ CONSULTANTS
2900 + VME + S3	PROGRAMMER
2900 + VME ± DOS	TECHNICAL SUPPORT/SIZING
IDMS OR VME OR TPMS ± COBOL (VME 2900)	CONSULTANTS/ PROJECT LEADER
[illegible] ± PACKAGE X ± QUERYMASTER ± PDS	ANALYST, ANALYST/ PROGRAMMERS
IDMS (X) ± CAFS ± COBOL ± DDS + S3	DB DESIGNERS/ DBA SOFTWARE
VME + SCL + DDS + S3 ± COBOL ± TP ± IDMS	SOFTWARE DESIGNERS/PROGRAMMERS
[illegible] COBOL OR PASCAL	PROGRAMMERS
[illegible]	ANALYST/PROGRAMMERS
[illegible]	CONSULTANT
[illegible] ASSEMBLER	PROGRAMMERS

OTHERS

VAX/VMS + MACRO – 32	ANALYST/PROGRAMMERS
[illegible] + IMAGE + COBOL ± VIEW	ANALYST/PROGRAMMERS
[illegible]	PROGRAMMERS
VAX/VMS + COBOL ± SYSTEL	ANALYST/PROGRAMMERS
[illegible]	PROGRAMMERS
[illegible] + MACRO-32, BASIC [illegible] SWITZERLAND	ANALYST/PROGRAMMER
VAX/VMS + PASCAL OR FORTRAN	ANALYST/PROGRAMMERS
[illegible]	PROGRAMMERS
VAX/VMS + PDP RSX11M + PASCAL OR [illegible] CORAL	SENIOR PROGRAMMER
TANDEM + TAL [illegible]	PROGRAMMER
H [illegible] COBOL + SCREENWRITE	PROGRAMMERS
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PDP11 + RSX 11M + RMS + MACRO-11	PROGRAMMERS

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COMPUTASTAFF

COMPUTASTAFF LIMITED, LIVINGSTONE HOUSE, 11 CARTERET STREET LONDON SW1H 9DJ — TELEX [illegible]

Systems Programmers

Thames Valley

£12-14,000

Our client is looking for two technically competent Systems Programmers who want to develop their skills in a mainstream IBM software environment.

The company has an IBM 4341/2 processor running under VM and OS/VS1, with CICS, DL/1, APL, ROSCOE & UFO. Early next year it will implement MVS in readiness for a processor upgrade and network support under SNA.

You should have at least 4 years' IBM DP experience and 18 months minimum as a Systems Programmer with in-depth knowledge of VM or VS1 or CICS. Experience of MVS would be an advantage for one post.

A competitive salary will be offered, based on experience, as well as ample training and a good benefits package expected of a large company. For further information, please write or telephone (24 hour answer service) quoting ref: CW103-3D. Applications are invited from either sex.

CAPP ASSOCIATES
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International & UK Recruitment Consultants

(6721)

Computer Personnel
Excellent Career Opportunities

Our Clients are one of the leading software houses in the country who also have a thriving systems sales division. They have an excellent growth record since their formation four years ago and envisage continued growth in both the U.K. and the export field, in which they have a first class reputation. To assist in their growth they require the following personnel.

Sales Manager/Sales Director Designate WHC/CRS/428

The company have several dealerships with top quality hardware manufacturers which they market as a complete system using their own software, to a variety of small and large businesses. Your role would be to develop and expand the already established business.

Aged 28-40 you will have a sound track record in the computer hardware, software or related fields and have the potential to become Sales or Managing Director in a short space of time.

Project Leader WHC/CRS/429

The Project Leader will be responsible for supervising a team of programmers, who are taking ideas from inception to finished product in the areas of graphics, data base systems, languages and general commercial systems as well as undertaking a practical role yourself.

Aged 25-35 you will have several years experience as an analyst or systems designer in a mini or micro environment, BASIC, C or PLI languages using MS-DOS, CP/M, UNIX, or PICK operating systems would be advantageous although not essential.

Graduate Trainee WHC/CRS/430

Responsible to the Project Leader you will be involved in developing the next generation of products using 'State of the Art' hardware.

A graduate in computer science you should have an interest and flair in one of the following, graphics, database systems, language compilers or operating systems.

Rewards

All positions offer excellent salary packages, coupled with real prospects of promotion and the opportunity of some travel abroad.

Please forward C.V.'s to Harry Chalmers, Director quoting the appropriate reference number and listing separately any companies to whom your details should not be sent.

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(6690)

Rare opportunities in the West Midlands

PROGRAMMERS and ANALYST/PROGRAMMERS - PDP 11

Allied Carpets, part of the Associated Dairies Group, are one of the fastest growing retailers in the UK.

We are committed to computerisation and are in the process of installing computer equipment in our stores linked to our Head Office via an auto-dial system.

Our plans are such that we need to increase our small development team to enable work to proceed on a wide variety of projects.

To work in this enthusiastic and dynamic environment, you should have a minimum of 2 years' programming experience. We operate under RSTS/E using BASIC + and BASIC + 2 programming languages.

This is an opportunity to further your career, gain job satisfaction, improve your prospects and at the same time receive an excellent salary dependent on experience.

Write now including a brief CV to:-
Mr. T. Ayling, Allied Carpet Stores Ltd.,
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(6728)

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PROGRAMMER

An experienced Programmer is required by a Software consulting in a rural area near Bath. It is expected that the successful candidate will be capable of working with clients in the office or on site with the minimum of supervision. In addition experience with at least one of the following is essential:

DEC PDP 11
RSTS/E
BASIC PLUS

Computer Application within the construction industry.

Please apply in writing with a comprehensive c.v. to:

South West Systems
The Old Brewery
Freshford, Nr. Bath

(6667)

BOX NUMBERS

Box number replies should be addressed to:

Box Number ....

c/o Computer Weekly
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS

FREELANCERS

Für langfristige Projekte in Deutschland, Österreich und in der Schweiz suchen wir für sofort/später (Softwarehaus) Hardware- und Software-Spezialisten mit mindestens 3 Jahren Berufspraxis auf folgenden Gebieten:

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5. Systemprogrammierer für MVS, DOS/VSE, VM, BS 1000/BS 2000, CICS und IMS.

Die Zusammenarbeit erfolgt auf freiberuflicher Basis (eventuell auch Angestellter). Gern führen wir in Kürze in London ein Gespräch mit Ihnen. Übersenden Sie uns bitte Ihre Bewerbungsunterlagen an folgende Adresse:

Unternehmensberatung Kollrich GmbH
z.Hd. Herrn Kollrich
Rheinstrasse 17
6200 Wiesbaden, West Germany

oder rufen Sie uns unter folgender Telefon-Nr. an: 01049-6121-39741.

(6645)

Senior Operator

Brantford International Limited are one of the largest freight forwarding organisations in the UK and are expanding internationally.

The company operate a hardware installation at their head office at Barking, Essex, based on the ICL ME29 generation of equipment and are seeking a senior operator who will be responsible for the efficient running of day-to-day batch/real time facilities, the selection and training of operational staff, and liaising on the development and installation of peripheral equipment when desired.

The successful candidate, probably 30 years plus, will have at least 12 months' experience on ICL ME29/2903/04 or similar equipment and will have proven supervisory experience.

Future prospects for the right applicant are extremely good and the importance of this position within the company will be reflected in the salary and benefits offered.

Please telephone or write for an application form to Mr R. Martin, Personnel Manager, Brantford International Limited, Regal House, East Street, Barking, Essex IG11 8EY. Tel: 01-594 7181 Ext: 285.

(6701)

Brantford International

TECHNICAL and OPERATIONS SUPERVISOR

Salary c.£12,000

The Company
The BMA is a professional association established for the promotion of medical sciences, and the maintenance of the interests of the medical profession. (Listed as a Trade Union under the Trade Union and Labour Relations Act 1974.)

The Job
Reporting to the manager, Information and Systems Department, the Supervisor will assist in the growth and expansion of the computer services centre. He/she will advise on operating systems, systems, software, telecommunication, hardware and related technical areas and also supervise the day-to-day operational and development work.

The Applicant
Should have min. 3 years' experience in data processing and be able to illustrate managerial ability, together with keen mental agility.

The post carries a contributory pension scheme, together with 22 days' annual paid leave.

Full details of experience and qualifications should be sent to Mrs B. E. Dyer, JP, Personnel Manager, BMA, BMA House, Tavistock Square, London WC1H 9JP, to be received no later than 5th December 1983.

Job description and preliminary information available on request.

(6692)

PROGRAMMERS ANALYST/PROGRAMMERS DESIGNERS

P-E's software house builds tailor-made systems at home and abroad, on client sites and in-house and on mainframes and minis. We have opportunities now for self-confident, mature and talented programmers, analyst/programmers and designers – typically with three or more years' IBM, UNIVAC, ICL, HP or DEC experience – to join our permanent staff engaged on development projects for our many clients.

In addition to relevant experience, but without age being a limiting factor, we seek in applicants the ability to cope with change, handle responsibility and overcome sometimes difficult challenges. We offer in return excellent financial rewards including valuable fringe benefits such as choice of company car, free pension arrangements and profit sharing scheme, plus the opportunity to broaden your technical and personal horizons and progress at a rate dictated by ability and potential.

To be considered for these positions please forward your résumé to David A Thomas, Director, at the address shown.

PE
P-E Computer Services Limited
Park House
Egham
Surrey TW20 0HW
Tel: Egham (0784) 34411

(6073)

SENIOR COMPUTER OPERATOR

The Equitable Life Assurance Society, a long-established but progressive and expanding company, has a vacancy for a Senior Computer Operator at its modern offices close to the centre of Aylesbury.

Our current installation is comprised of two ICL 2966s, an ME29/45 and we are planning to set up a branch communications network.

Applicants should have at least 3 years' ICL operating experience on DME/G2. Experience of VME and G2S would be an advantage. Ideally the successful candidate should be aged between 20 and 30 with at least 6 'O' levels, including Mathematics and English.

We operate a two-shift system (8.00am-4.00pm and 4.00pm-12 midnight) and candidates should either have their own transport or live within walking distance of the office.

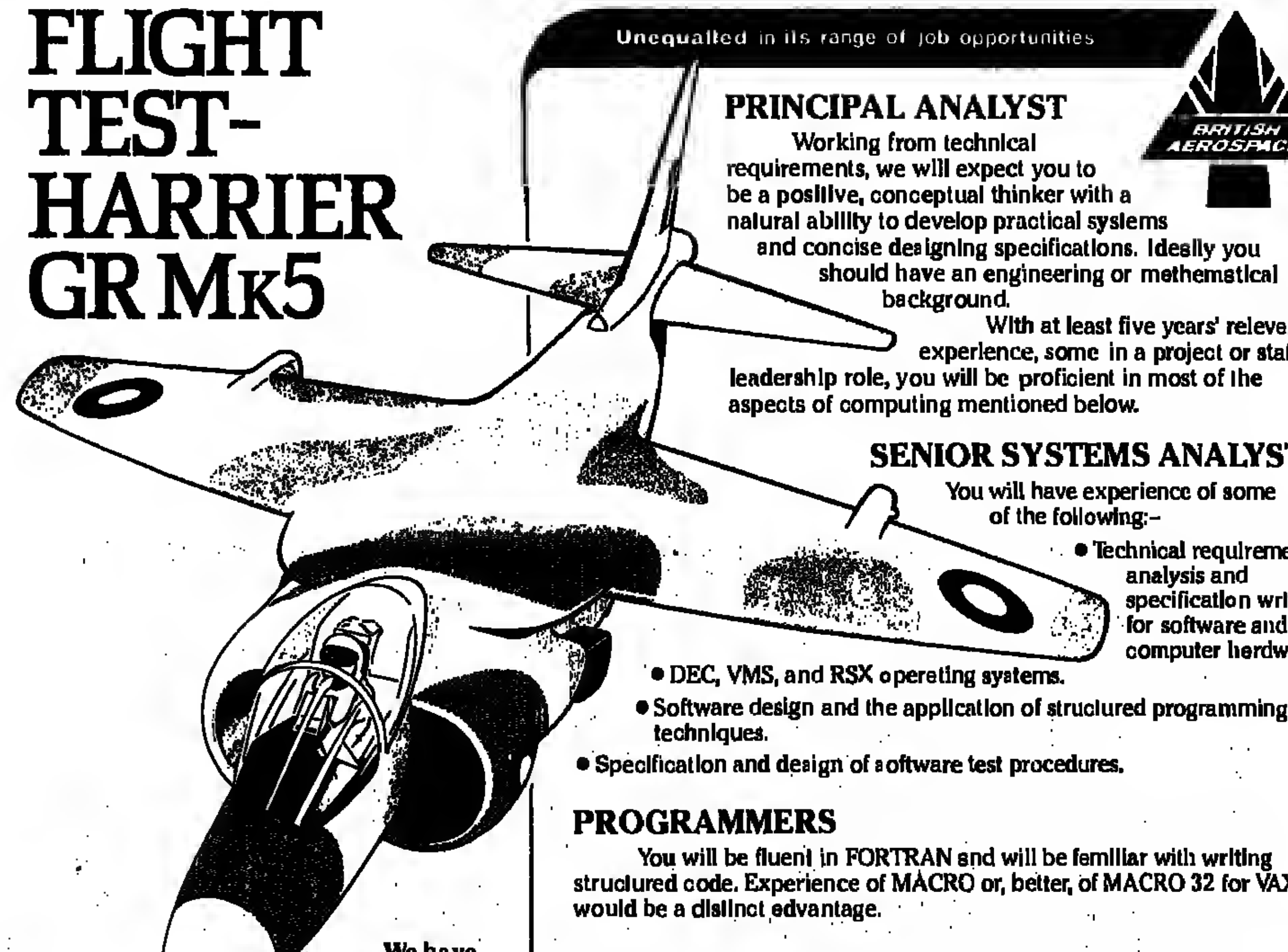
The Society offers competitive salaries plus an annual bonus. Other benefits include a non-contributory pension scheme, 20 days' holiday a year, a staff restaurant providing free lunches and the opportunity in the future to be considered for a staff house purchase loan at concessionary rates.

To apply, please write or telephone, indicating briefly how you meet our requirements to:-

Mrs Carol A. Bird, Staff Assistant,
The Equitable Life Assurance Society,
Walton Street, Aylesbury, Bucks HP21 7QW.
Tel: Aylesbury (0296) 33100.

The Equitable Life

FLIGHT TEST-HARRIER GR Mk5



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We have developed an advanced airborne instrumentation system to measure and record the aircraft's operational capability in flight.

We are now introducing the very latest VAX computer systems to dramatically advance our flight data analysis facility.

This, together with our ambitious future plans for computer based systems, has created important openings for experienced Software Engineers.

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Working from technical requirements, we will expect you to be a positive, conceptual thinker with a natural ability to develop practical systems and concise designing specifications. Ideally you should have an engineering or mathematical background.

With at least five years' relevant experience, some in a project or staff leadership role, you will be proficient in most of the aspects of computing mentioned below.

SENIOR SYSTEMS ANALYSTS

You will have experience of some of the following:-

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- DEC, VMS, and RSX operating systems.
- Software design and the application of structured programming techniques.
- Specification and design of software test procedures.

PROGRAMMERS

You will be fluent in FORTRAN and will be familiar with writing structured code. Experience of MACRO or, better, of MACRO 32 for VAX, would be a distinct advantage.

All these positions are based at Dunsfold Aerodrome, near Godalming in Surrey, but for further information, please write in the first instance, enclosing a C.V. if possible, to:

Mrs C Wiseman, Personnel Officer (Design), British Aerospace plc, Aircraft Group, Kingston-Brough Division, Richmond Road, Kingston-upon-Thames, Surrey KT2 5QS.

(6672)

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Applications are invited for a new post with a company developing artificial intelligence software for industrial applications. An experienced software engineer is needed to assist in the productising of an existing rule induction package, and in a follow-on technical marketing and support operation targeted on Europe and the Middle East. Applicants should have a sound acquaintance with artificial intelligence methods in general, and knowledge-based programming and rule acquisition in particular. Experience in hardware, in addition to a knowledge of FORTRAN-77 and of Middle-East software markets, is essential. A working command of Arabic is also requisite.

Please apply to: Mrs P. Montgomery, ITL, Room 14, 2 Hope Park Square, Edinburgh EH8 9NW, Scotland.

(6753)

ANALYST/PROGRAMMER

SALARY NEGOTIABLE **NOTTINGHAM**

The RSC provides a distribution service for books and journals for many Publishers from its centre in Letchworth, using systems running on PDP 11/70s based in Nottingham.

We require an experienced Analyst/Programmer to work in a small team to maintain and enhance our on-line systems.

Applicants should have sound commercial experience, and knowledge of Basic Plus 2 running under RSTS/E.

If you are interested please telephone Mrs Lynda Tulley on 0602 57411 extn. 39 for further details.

(6752)

BRISTOL POLYTECHNIC
Computer Studies & Mathematics Department

READER IN COMPUTING

Ref No L/60

Applications are invited for a Readership in Computing. Applicants should have a suitable postgraduate qualification and substantial experience in research/consultancy. The successful candidate will be expected to conduct and promote research and its commercial/industrial/social applications, to attract and organise externally funded projects and to extend the range of current collaborative projects

The Department is active in a range of collaborative research and consultancy projects some of which focus on Information Technology. There are three Research Assistants working on (i) a Knowledge Based System for Speech Therapy for Stroke Victims, (ii) Knowledge representation in Expert Systems, (iii) Information Requirements in Advanced Manufacturing Systems, and a Research Assistant working in collaboration with Michael Jackson Systems Ltd.

Salary scale £12,519-£13,936 (bar) – £15,744 per annum

For further details and an application form, to be returned by 12 December, 1983, please contact the Personnel Office, Bristol Polytechnic, Coldharbour Lane, Frenchay, Bristol or ring Bristol 656261, ext. 216 or 217.

Please quote Reference Number L/60 in all communications

(6727)

Senior Computer Operators

The Computer Operations department of STC Components — part of a major electronics group — is continually being expanded. The department's exciting plans include an imminent change from the Honeywell 66 Series equipment to the latest DPS 8 equipment.

Senior Computer Operators are required to take responsibility for the day-to-day running of the installation, to assist with the training of junior staff and the prompt solving of problems. Activities in the department include running TDS/Batch work under GCOS, supporting a 300+ terminal network, with Remote Level 6s, at offsite locations, offering Batch and Printing facilities.

Reporting to the Shift Leader, you would work a rotating shift system Monday to Saturday.

This is an opportune time to join this vital department and to make a real contribution to its on-going success. Stimulating new challenges will frequently come your way, providing valuable scope to enhance your skills and develop your career.

You should be aged 20-30, educated to 'A' level standard and have a minimum of three years' operating experience within a multi-processing environment. Highly competitive salaries are offered for these positions, together with an attractive range of benefits.

Please send full c.v. to G. C. Davey, Headquarters Personnel Department, STC Components, Edinburgh Way, Harlow, Essex. Tel. Harlow (0279) 26811

(8724)

STC Components **STC**

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We are a division of the highly successful DP Support Services Group which recruits both permanent and contract staff for the UK Computer Industry and as a result of continued business expansion we are seeking to recruit staff for our Piccadilly W1 based offices.

If you can offer proven recruitment experience or two-three years' data processing experience coupled with a lively and tenacious attitude to succeed then telephone now to discuss your experience in confidence quoting reference WB241.

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dp SELECTION SERVICES

7 Swallow Street, London W1R 7HD

"We look forward to hearing from you"

(8880)

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C. PROGRAMMERS—NOW
PROJECT LEADERS—TELECOMMS EXPERIENCE AND PASCAL FORTRAN OR BASIC
HP3000 COBOL IMAGE VIEW PROGRAMMERS
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DEC RSTS BASIC +2 ANALYST/PROGRAMMERS
VAX DBMS COBOL PROGRAMMERS
HP3000 COBOL PROGRAMMERS
MOTOROLA 6800 ASSEMBLER SOFTWARE ENGINEER
VAX/INTEL MASCOT CORAL 66 DESIGNER
MOTOROLA 6800 C SOFTWARE ENGINEER
PRIME FINANCIAL ANALYST
HONEYWELL LEVEL 6 TPS ANALYST PROGRAMMERS AND PROGRAMMERS

Please contact John Edwards on: 01-681 8311

Computer Search & Selection

Computer Search and Selection,
Hamilton House, Marlowes,
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Teach Computer Programming

at Preston Prison

We're looking for an experienced person to teach, as a Civilian Instructional Officer, the practice and theory of Computer Programming to prison inmates.

Much your own boss After an intensive course on teaching techniques, you'll be given responsibility for implementing a training syllabus. Trainees are prepared for the City & Guilds Certificate 747, 748 and other appropriate equivalent examinations.

Secure A steady job and a regular pay packet.

Good working conditions Every effort is made to build an atmosphere which is as similar as possible to any other office environment, although at certain establishments security may demand the presence of a prison officer.

Satisfying to know you're responsible for giving your trainees a basic skill and helping them, perhaps, to find a more useful way of life.

To apply, you should have a wide experience in the field of commercial computer programming, in COBOL or BASIC, a knowledge of FORTRAN would be an added advantage. Candidates should also have a knowledge of information systems. You should have received recognised training in the profession. Possession of a recognised qualification would be an added advantage.

Pay starts at £7,481 rising to £8,929 (including Environmental allowance), 5 day week, generous holidays.

For further information and an application form, please write to: The Home Office (R2/DH), FREEPOST, London SW1V 1YZ (no stamp required). Applications are invited from men and women.

The closing date for applications is 12th December 1983.

H.M. Prison Service — A Service for Society

SENIOR APPOINTMENTS—£14K+

SALES & MARKETING DIRECTOR

£35,000 + CAR

Our client is expanding its already successful operation. Significant in this expansion plan is the role of Sales & Marketing Director. This is a highly challenging opportunity and will be of interest to ambitious computer professionals who can demonstrate a successful track record with a computer manufacturer or service company. A knowledge of the peripheral market is also desirable.

If living London/Home Counties, telephone Don Linstead, GB Technical Services, 170, Piccadilly, LONDON W1V 9DD, 01-499 5308, for full details.

(6676)

MICROPROCESSOR SYSTEM DESIGNERS

We are a specialist engineering company with an expanding electronics dept. manufacturing micro-based control equipment. We have vacancies for Hardware Designers/Programmers to design our newest range of products. Applicants must have experience of circuit design at chip level, and assembler programming (preferably 6502).

We are looking for motivated people to help the company grow. Pleasant location. Good salaries for the right people.

Apply to: Tim Hopkins, Permex Ltd., Lodge House, Lodge Road, Hendon, London NW4 4DQ. Tel: 01-203 4243.

(6625)

SK Computer Systems (Maintenance) Limited

COMPUTER SERVICE ENGINEER

HERTS AND LONDON

We are looking for Service Engineers with a practical knowledge of DEC hardware and compatible products.
A company car will be provided and salary is negotiable dependent on experience and qualifications.
Please write or telephone for further details and application form to:

DAWN SURRIDGE
SK COMPUTER SYSTEMS (MAINTENANCE) LTD
Pixmore Industrial Estate
Pixmore Avenue
Letchworth
Herts
Telephone: Letchworth (04626) 79461

(6634)

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JEDDAH

c.£20k Tax Free +Exceptional Family Benefits

Saudia, is now the twelfth largest IATA passenger carrier in the world and employs computers on a vast scale. In 12 cities and 8 countries our data networks link more than 1,000 computer terminals processing nearly 100,000 transactions daily and are used by more than 2,000 employees in their work.

Even greater expansion of our data services department is underway and we now wish to strengthen our team of computer professionals at our purpose-built data and communications centre in Jeddah. This modern operation supports a large IMS and CICS — based online operation, running on Dual IBM 3033 mainframes under MVS/SP1.3 with JES2. JES3 is planned for 1984.

SYSTEMS PROGRAMMERS £20,000+

These are senior positions within our systems support group demanding a high level of professionalism and motivation. Successful candidates will be educated to 'O' level standard and have a minimum of 7 years' in data processing, the last 3 of which will have been gained on the installation/support of one or more of the following operating systems: MVS, VTAM/NCP, CICS/VS, IMS DB/DC, all areas demand full knowledge of SMP.

TERMINAL OPERATORS £17,500+

These key positions will require a minimum of 5 years' large IBM operations experience, the last 2 of which will have been gained as an MTO supporting an IMS online operation. In addition to console operations, you will provide a 'help desk' function and be responsible for training Saudi nationals. CICS experience would be a distinct advantage. The position is shift-based, covering a 24-hour a day, 7 days a week operation.

We offer a highly attractive benefits package which includes:

- ★ Free villa or apartment in an attractive residential area.
- ★ Superb recreation facilities with swimming pools, tennis courts and sports club.
- ★ Subsidised schooling for children up to the age of 14.
- ★ Free flights for you and your family to the UK with the opportunity for several home visits each year.
- ★ Worldwide discount air travel.

These positions are open to men aged up to 55 on a 2 year renewable contract basis. Salaries are paid locally in Saudi Riyals (currently SR 5.2=£1) with no local income tax.

For informal discussion please call Peter Stevenson or Martin Kelly on

01-995 7755 ext. 138

or write with full c.v. to
Area Personnel Manager, Saudia,
508 Chiswick High Road,
London W4 5RG.

saudia SAUDI ARABIAN AIRLINES

Data Processing Manager

North of London

Salary c.£20,000 + Benefits

NEW APPOINTMENT

Our client, one of the world's premier publishing companies, is committed to acquiring substantial in-house mainframe facilities to service existing business lines and support a major new product launch in the area of electronic data dissemination.

This is a true 'green-field' situation, reporting to the Managing Director, and will involve the successful applicant in evaluating a variety of options and building up internal staff resources as appropriate. Major areas of activity include instituting sophisticated data capture techniques, managing software development programmes and implementing electronic text dissemination facilities. Extensive liaison with external customers and software houses is indicated.

The requirement is for a self-motivated and technically orientated data processing professional with comprehensive experience of managing hardware operations and proven systems project management skills, preferably where external resources are employed. An in-depth knowledge of data communications in a global context is essential and specific experience of Videotex applications would be a strong additional recommendation. Age indicator is in the 30's and a formal qualification is preferred.

To apply please send a CV or write or telephone for an application form to JOHN KITCHEN, at the address below, quoting Ref. GW1173.

BIS Applied Systems Limited
York House, 199 Westminster Bridge Road
London SE1 7UT
Telephone 01-633 0866

BIS Applied Systems

Ambitious market development programme

TOP-PERFORMING SENIOR SALES PROFESSIONALS: SHARE IN OUR SUCCESS

NOW is the time to secure YOUR future

Major accounts/vertical markets UK-wide opportunities package from £23,000 + choice of quality car + benefits

We're a major force in the office automation market-place, with a substantial established client base throughout the UK and a fast-developing product range encompassing everything from multi-function stand-alones to comprehensive shared-resource networks. Our current major expansion, coinciding with the introduction of a new generation of products, means there's never been a better time to join us.

As part of our progressive market development programme we are reorganising our field sales operation – and the creation of these exciting new opportunities is a key element of this strategy. We'll be reinforcing our existing horizontal sales organisation with an entirely new sales team who will be involved in selling our full product range (WP, shared-resource and office automation systems) to major/national account customers and to vertical markets (especially finance, government and specific industrial sectors).

To spearhead this initiative, we're looking for experienced senior sales professionals with proven business development capability – men and women who, above all, have the potential to grow within a recognised career structure leading to branch or regional management or beyond. These rewarding opportunities will appeal to ambitious sales professionals who can back at least 5 years' successful selling in the computer/office automation industry with a mastery of the 'conceptual' sell and an ability to negotiate effectively at board level.

The highly achievable target earnings figure of £23,000 will consist of competitive five-figure base salary plus commission. Top performers, however, can expect to exceed this considerably, thanks to the no-ceiling package structure. And the more impressive your track record to date, the greater can be your expectations within this very generous system of remuneration. Free health insurance, life insurance, pension scheme and, if appropriate, assistance with relocation are all included among the large-company benefits.

If you feel you meet our requirements and would like to join a company whose business has increased by over 80% in the last 2 years, phone Chris Durnan (National Sales Manager) on Reading (0734) 883242 during office hours. Alternatively, write to him enclosing a detailed cv at Wordplex Limited, Excel House, 49 De Montfort Road, Reading, Berkshire RG1 8LP.

WORDPLEX [6738]

SYSTEMS MANAGER

Location: Lichfield, Staffs — Five figure salary + company benefits

J H Sankey & Son Ltd., one of the country's largest builders' and plumbers' merchants with a national network of trade outlets, is seeking a highly motivated and experienced systems manager to head-up a systems team with the prime task of developing effective incompany procedures and applications.

The successful candidate must demonstrate a proven record in the management and implementation of projects evaluated and approved through cost benefit studies to establish their feasibility and practicality.

A capacity for planning, directing and co-ordinating systems through the motivation of staff and effective communications with management is an essential feature of the appointment.

The submission and subsequent implementation of approved proposals for the introduction of new manual and data processing systems together with ongoing reviews and recommendations on company D.P. equipment will also form part of the overall position responsibilities.

The position carries with it an attractive salary package including a first class pension scheme and private medical insurance.

Applications which will be dealt with in strictest confidence should be addressed to:

Ted Smith, Personnel Manager,
J. H. Sankey & Son Ltd., Station House,
Harrow Road, Wembley, Middlesex [6646]

SANKEY

LONDON SCHOOL OF ECONOMICS
COMPUTER SERVICE

RSTS SUPPORT PROGRAMMER

The school has several PDP 11 computers which are used for a variety of wordprocessing and administrative tasks in areas such as student records, information retrieval and timetabling.

Applications are invited from experienced Programmers to assist with: support and maintenance of RSTS, including systems organisation and optimisation, installation and upgrades of word-11 and Cupid packages and related software troubleshooting, development of applications programs using Basic plus, Cobol and Cupid.

File transfers between the RSTS machines and a variety of other computers, from micros to mainframes.

Applicants should have a degree in a computer-based discipline and preferably two years' relevant experience. Salary according to age and experience will be in the range £7,400-£11,000.

Application forms returnable by 8 December 1983 may be obtainable from the Personnel Department, LSE, Houghton Street, London EC2A 2AE. Telephone 01-404 4769. [6739]

THE BRITISH PRINTING INDUSTRIES FEDERATION

ANALYST/PROGRAMMER

to continue the development of a management information package for printers. The package is being written for micro computers and is centred around costing and estimating.

The work will also involve installation of the package in member firms and provision of additional software to meet individual requirements.

The job will be an interesting challenge to a self-motivated person who, preferably, has knowledge of accounting or costing requirements, is skilled in the use of M BASIC and COBOL and is familiar with the CP/M operating system. Preferred age range: 30-40.

and

PROGRAMMER

to work with the analyst/programmer on the development of the package. Experience of M BASIC and the CP/M operating system required.

The job will enable a young programmer to gain experience not only in programming but also in the management information needs of a wide range of companies. Preferred age range: 20-30.

Attractive salaries, according to experience, and a good pension and life assurance scheme are available.

Apply to: Director General, BPIF, 11 Bedford Row, London WC1R 4DX. [6663]

MOSCOM LIMITED SALES SUPPORT ENGINEER

Moscom are a manufacturer of telecommunications equipment distributed worldwide. We require someone with a minimum of three years' experience as technical support for the sale of telecom equipment

Experience should include a knowledge of the telecommunications industry and microprocessor based equipment. Duties to include on-site demonstrations, data collection, installations, preparation of technical quotations, performance specifications and design audit tests. This position would appeal to a self-motivated individual who wants to advance with a new dynamic company, and who enjoys travel throughout Western Europe

Salary commensurate with experience

Please submit c.v. in strictest confidence to:

Mr J. Centannt, Director Technical Support, Moscom Limited, Heston Park House, New Heston Road, Heston (nr Hounslow), Middlesex [6428]

ANALYST PROGRAMMER

Circa £10,500

NORTHAMPTON

Cosworth Engineering Ltd, world-famous designers and manufacturers of high-performance engines and components, are looking for an Analyst Programmer to join the management services team and to act as Deputy to Management Services Manager.

The position involves the development and implementation of a wide range of systems required by a progressive engineering company with a heavy involvement in the system management role on the HP3000.

Applicants should have a minimum of two years' COBOL and preferably one year's systems analysis in a manufacturing environment.

An attractive remuneration package is offered including non-contributory pension, four years' life cover and five weeks' holiday. Assistance with relocation will be offered where necessary.

If you think you meet our requirements, either send a c.v. or telephone:

MR. W. PRATT (PERSONNEL MANAGER)
(0604) 52444
COSWORTH ENGINEERING LIMITED
ST. JAMES MILL ROAD
NORTHAMPTON NN5 5JJ

We are an oilfield service company and currently have a vacancy for a

VAX 11/780 COMPUTER OPERATOR

to work in our Data Processing Department.

The successful applicant will be required to work shifts and should be educated to O level standard with a minimum of one year's operating experience.

A good basic salary, plus shift allowance and LVs are payable together with four weeks' holiday and non-contributory pension scheme.

Please forward c.v. or telephone the Personnel Department for an application form.

SCHLUMBERGER
1 KINGSWAY
LONDON WC2B 6XH
Tel: 01-379 6191

Schlumberger [6647]

COBOL PROGRAMMERS

Two years' experience preferably on IBM Hardware

to £12,000 inc.

- \+ Five weeks' holidays
- \+ Free Lunch
- \+ Discount Holidays
- \+ Medical Insurance
- \+ Annual Salary Review

Keystone Computer Agency
01-488 4746

Gallup, one of the country's leading market research agencies, is expanding its Data Processing Department. The last few years have seen considerable developments in the services offered by the department using the company's IBM 4331 computer. Following our recent growth and our plans for further expansion this is an ideal opportunity to join a highly motivated and professional department.

PROGRAMMER

We are looking for a programmer with at least 2 years' IBM experience using FORTRAN or COBOL to work on a variety of established and new applications.

SPEC WRITER

The applicant should have a minimum of 2 years' experience in using a Market Research survey analysis package.

The salary for both posts will be negotiable according to age and experience. Write in confidence, enclosing a detailed c.v. to:

GALLUP

Graham S. Dossett
Gallup
202 Finchley Road
London NW3 6BL

U.K. Data Processing Manager

c£12,000

IBM SYS 36
New Installation
Development
Relocation
Ground Floor opportunity
Rural West Midlands

We are a successful American owned company in the manufacture and hire of materials for the construction sector. Continued growth and a company re-organisation have led us to appraise our Data Processing strategy and consequently we are installing an IBM SYS 36 in the new year and will be respecifying and redeveloping our DP and MIS facilities. We are therefore looking to appoint a self motivated, hands on individual who must demonstrate sound Business Analysis experience preferably with a good working knowledge of order entry, invoicing, ledgers, accounts and inventory systems. A programming background is essential (ideally RPG II) together with the ability to cope with heavy user liaison where personality will be the main asset required to build a new department.

Situated in a rural Midlands environment this post offers stability and genuine opportunity. Relocation expenses will be offered where applicable and the basic salary and benefits package will be generous. For further information please contact your local TCR office.

TCR Targa Computer Recruitment

6 Liverpool Street London EC2M 7NH — Telephone: 01-283 9941 Telex: 25851
Moneco House Bristol Street Birmingham B5 7AS — Telephone: 021-622 2045 Telex: 334237

[5602]

Analyst/Programmers

Scientific Background

Sussex — **DEC/RSX/11M**

VG Scientific is a world leader in multi technique surface analysis. We manufacture a complete range of instruments and accessories for the scientific examination of surfaces, and we are innovators in high technology molecular beam epitaxy for semiconductor production.

Our continued expansion means we require two Analyst Programmers with a scientific background, to join our Systems Development Department. Working on program design and development your experience in using RSX 11M MACRO-II is essential. Familiarity with PASCAL would be an asset.

We offer a competitive salary - very negotiable for the right person. Company benefits are excellent and include: sickness and pension scheme, free life assurance, five weeks holiday (increasing), and re location expenses will be met where neccessary.

VG SCIENTIFIC
The surface science company

Contact Mrs. Wiseman now on:
(0342) 25011
Alternatively write immediately enclosing full C.V. to: VG Scientific Ltd.,
The Birches Industrial Estate, Imberhorne Lane, East Grinstead, Sussex, RH19 1UB.

Writing is exciting with us!

Swindon — **c. £11,000**

Are you an experienced Software Engineer?

Could you explain and communicate software concepts to hardware engineers? Would you enjoy writing and implementing software for use in the testing of our advanced, microprocessor-based communications products?

We are Logica VTS, part of a leading European computing and communications company, dedicated to bringing the reputation for quality associated with the Logica name to the design, manufacture and marketing of text processing systems, both for major OEM customers and end user markets.

We now have a vacancy for an enthusiastic Software Engineer to specify, write, implement and evaluate self-diagnostic software for use in the testing of our products. You will liaise with our research and development staff, to produce quality software to our very exacting standards.

If you have a relevant degree or HND with a minimum of 2 years' experience of microprocessor/high level programming, and are familiar with digital hardware and UNIX/CPM operating systems, we would like to hear from you.

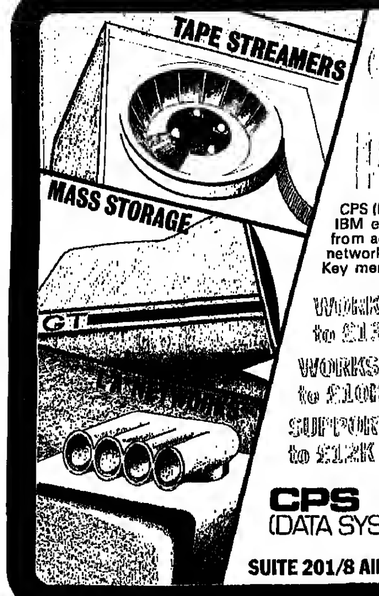
Please contact, quoting ref: VTS/67, Pauline Mobey, Personnel Officer, on Swindon (0793) 36291 or write for an application form to Logica VTS Limited, Drakes Way, Swindon, SN3 3JL.

[0705]

logica vts

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611



computer enhancement products

CPS (Data Systems) Ltd., are a fast growng distributor of IBM enhancement products. Offering a product ranga from add-on mass storage devices through to local area networks, sales will grow towards £10 million in 1984. Key members are required to complement a small taam that work for each other. Such individuals will have a ganuine interest in their job and their role within the company. In return you will receive the satisfaction of total involvement in both the company's and your own personal davelopment. A full relocetions peckage is availeble.

WORKSHOP MANAGER to £13K + car

A key individual, the succesaful candidate must possess a strong technical background obtained in a micro environment. As important is the maturity and personality to administrate the function in addition to training and supervising technicians.

WORKSHOP TECHNICIAN to £10K (possible car)

Two-three years' electronics experience including involvement with micros and peripherals and an interest in software is desirable. Component level ability and an HNC or equivalent qualification is advantageous.

SUPPORT ENGINEERS to £12K + car

Systems Engineers with competency in both hardware and systems software are required to support dealers and distributors in both the UK and Europe. Exposure to both mainframe and micros environments is advantageous as is experience of MS DOS. An elemant of foreign travel is expected.

For an informal discussion ring Chris Bond or Kirk Blackmore on 01-637 9611

CPS (DATA SYSTEMS) LTD

SUITE 201/8 Albany House 324 Regent Street London W1R 5AA 01-637 9611 **MANAGEMENT & EXECUTIVE SELECTION** (6693)

Operations Manager

c£11,250 Dual HP 3000 Birmingham

"An exciting opportunity to participate in the development of computer facilities and future strategy in a Management role"

As an important member of a large International Group, we are fully committed to the widespread use of computer technology. Our dual HP 3000 installation, together with a combination of other mini and microcomputers, provides a sophisticated computing facility catering for traditional commercial and manufacturing applications. Our objective in the short term is to extend our resources to provide an efficient computer controlled plant.

To help us realise this important objective, we now wish to recruit an Operations Manager. The successful candidate will possess in-depth operations experience from the interactive mini area – ideally, but not essentially, HP 3000 based. The role of Operations Manager will encompass the supervision and direction not only of the day to day operations function, but also with the forward planning of hardware and software development including local area networking and communications.

The position is ideally suited to an individual who is prepared to become totally involved in all aspects of a busy and developing computer installation. The ability to communicate effectively with Management, Users and Colleagues is considered as important as technical ability.

A first class salary package will be available, enhanced by relocation facilities, pension scheme and 25 days' annual leave.

In the first instance, please contact **Jim Mitchell** on **021 236 3781** (24 hour answering service) or on 021 455 7653 (evenings and weekends until 9.00 p.m.).

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

SOUTH — James House, 45 James Street, London W1M 5HS, 01-935 0871/486 0461

MIDLANDS & INTERNATIONAL — 35-37 Great Charles Street, Queensway, Birmingham B3 3JY, 021-236 3781

NORTH — International House, 84 Deansgate, Manchester M3 2ER, 061-839 0427

BELGIUM — Avenue Louise 327, Boite 4, 1050 Bruxelles, 010 322-640 7151/71

HOLLAND — Willemsparkweg 92, 1071 H.M. Amsterdam, 010 3120-780947

Telecommunications/ Data Specialists

Are you ready to make a major career move?

CROYDON up to £11,800

Join our Network Control Group and get involved with our rapidly expanding on-line Network. This is one of the largest of its kind in the UK.

The Data Network consists of approximately 1400 terminals attached to an IBM 3081 and an Amdahl 580/60. A further 40% growth is expected over the next few years including significant moves towards Distributed Processing.

You can offer us experience in:

- Evaluating and selecting new equipment
- Installation and planning
- Operational fault diagnosis and repair
- Interactive and distributed processing
- Equipment commissioning
- Mainframe data communications.

We can offer you the opportunity to contribute to our continued expansion.

You will preferably have reached HNC standard of education and will have the initiative to play a significant role in the work of the group.

A car allowance will be paid for travel throughout the South Eastern Region. Benefits include relocation assistance where appropriate, excellent working conditions, generous holidays, sports and social facilities (including squash and tennis).

Please write with full career details, quoting reference no OR139, to: Personnel Manager, South Eastern Gas, Segas House East, Katharine Street, Croydon CR9 1JU.

SOUTH EASTERN GAS

A top level role for an

IBM SOFTWARE SPECIALIST

with an ATM networks background

£ NEG **Scotland**

NCR, one of the world's leading Auto Teller Machine manufacturers is seeking a highly intelligent and articulate software specialist to fill a senior post at its East of Scotland design and development operation.

Acting in a consultative role, your main responsibilities will be to provide applications support to marketing and development groups and to liaise with customers in the banking community throughout the world at the highest level.

The successful candidate will have a minimum of four years experience gained in an IBM environment which will have provided an in depth knowledge of CICS. Recent involvement in the design or installation of a network of ATMs or other types of banking terminals would be ideal.

The salary package on offer will more than meet the expectations of the highest calibre of individual and the benefits are those one would expect of an International Company, including ample relocation assistance.

Please write with full personal and career details to Ian Hume, Manager – Employee Relations, NCR (Manufacturing) Ltd., Kingsway West, Dundee DD2 3XX.

NCR (6702)

Manager

Computer Division
Preston
c£15,000 (Negotiable)

Community Task Force, a national company with charitable status, has developed rapidly through successive Government programmes to provide work and training for the unemployed and school leavers. Currently, CTF is engaged in the Youth Training Scheme and the Community Programme on a substantial and national scale.

The Company operates an IBM System 38/4 with remote System 34's for employee administration and provision of management, statistical and financial information. This equipment has recently been installed.

Our present Manager is coming to the close of his secondment period and a permanent successor is being sought. Reporting directly to the Chief Executive, the successful applicant will be responsible for the development of new and improved information systems plus co-ordination with other Divisions in research and development of computers as training aids. In addition to computer activities, the Manager is a member of the senior management team.

Applicants must have had practical experience of managing a vigorous DP Department. Drive and imagination, together with the ability to motivate staff and meet strict development timetables are prerequisites for the post.

Applications in writing to: R.L. Thomas Esq., Professional and Executive Recruitment, 8th Floor, Victoria House, Ormskirk Road, Preston PR1 2DX.

Applications invited from either sex.

PER Executive Selection (6694)

CICS Specialists

London **c. £3000/month**

We require two experienced CICS Systems Programmers to undertake open ended assignments for separate clients, with initial commitments of between 3 and 6 months. In one case the role will be to carry out CICS performance monitoring/tuning in a multi-cpu installation running MVS/SP 1.3, CICS 1.6 and DL/1, including liaison with on-site MVS and VTAM specialists. The other client has recently installed MVS with CICS and DL/1 and needs support in tailoring the CICS environment, installing a high-level development package and providing technical support to applications staff. Candidates for either assignment should have more than two years CICS experience, gained preferably in an MVS environment.

T064-065

IMS Fast-Path Specialist

UK **c. £3250/month**

We are seeking an IMS DB/DC Design Consultant for a 12 month assignment in London. Applicants should have already played a key role in the design of several on-line IMS systems, and will ideally possess good knowledge about the design and performance constraints of the Fast-Path feature, together with some knowledge of communications protocols including PSS/X.25. The job role will be primarily to provide design advice to an application team developing a complex real-time system with IMS transaction rates which could approach 1000/second, although some involvement in other Fast-Path applications is likely.

J061

PL1/Analyst/Programmers

Home Counties **c. £2250/month**

We are seeking Analyst/Programmers at several levels of seniority to work on a 6 monthly renewable contract basis at our Client's IBM 3033 + 4341 Data Centre. Software in use includes MVS, VM/CMS, TSO/SPF, CICS and IMS DB, and applicants should have good knowledge of at least 2 of these in addition to PL/1. Start dates for these assignments range from late November 1983 to Easter 1984.

J063

MVS Systems Programmer

Home Counties **c.£2350/month**

We need an additional Systems Programmer to join our Client's system support team on a 6 monthly renewable contract basis. The current configuration consists of multiple 4341's running MVS/SP1.3, JES2, CICS, IMS DB, RACF and a variety of other Program Products. A major CPU upgrade is planned for early in 1984. Applicants should have as a minimum, a good basic grounding in MVS, together with knowledge of at least one of the other products above. The successful candidate will start the assignment in December or January.

J062

CDS is an Anglo-Swiss Consultancy specialising in systems programming and DB/DC application development. *For further details of the above positions or for an informal discussion on future European or UK assignments please contact Mike Shine at our UK offices Tel. 0276 681261 (or through our answering service on 0276 681266 during evenings/weekends).*

Telex 858062 CDS Limited, 19A Park Street, Camberley, Surrey GU15 3PQ.

cds IBM Systems Programming and DB/DC Specialists

Data Processing at our Addlestone Computer Centre

Plessey Computer Centre is one of the largest commercial data processing installations in the UK running several large ICL and DEC Mainframes. In the current phase of new developments and expansion we have the following vacancies:

Senior Systems Programmer up to £12k

Here is an excellent opportunity for an experienced professional to work on a wide range of interesting projects. Applicants should have at least 3 years' systems programming experience, specifically including VAX, VMS operations and familiarity with MACRO, BLISS etc.

Database Administrator up to £12k

This is an ideal position for someone experienced in Computer Science or Business Studies. Candidates should have a good background in data processing, including supervising databases and specific experience of IDMS and VME operating systems.

In addition to the stated salaries, we offer excellent company benefits including pension scheme, BUPA, paid overtime, generous holidays, subsidised restaurant and active sport and social club.

Please telephone or write to Peter Steiner, Recruitment Manager, Plessey Displays, Station Road, Addlestone, Weybridge, Surrey KT15 2PW. Tel: Weybridge (0932) 47282.

PLESSEY *electronic systems* (6695)

CAREER OPPORTUNITIES IN MANAGEMENT SERVICES

HALIFAX (£7,500 – £11,000)

We are Samuel Webstar and Sons Limited, part of the brewing division of a major international company. At our Fountain Head Brewery located two miles from Halifax into the Pennine countryside we employ over 500 people in the production, packaging, distribution and retailing of beers, wines and spirits throughout the Yorkshire region.

Due to promotion into Line Management we currently have two vacancies for Management Services Officers in our Department, which provides a professional, project-based service to all functions within the company. Projects range widely from the implementation of office automation (using some of the most advanced equipment available today) to the more traditional applications of analysis techniques in both the office and outside environments.

The persons appointed will be in their mid 20's to early 30's educated to degree level with formal training and several years experience in the area of business systems analysis. Some experience in the development and implementation of computer based systems is essential and programming knowledge would be an added advantage. A high degree of self-motivation, numeracy, tact and the ability to communicate effectively are also required.

We offer a competitive starting salary dependent on qualifications and experience, excellent career development opportunities, plus the other benefits normally associated with a major organisation. Relocation assistance will be given where appropriate.

SAMUEL WEBSTER 1838 HALIFAX YORKSHIRE

If you feel your standards can match ours then please telephone or write for an application form to: J. E. Mahon, Manpower Resourcing Manager, Samuel Webster & Sons Ltd., Fountain Head Brewery, Ovenden Wood, HALIFAX HX2 0TL. Tel: 0422 57188

(6697)

Systems Programmer

Oil Industry — **Libya**

c. £25,000 p.a. (Tax Protected) — **Single Status**

c. £27,000 p.a. (Tax Protected) — **Married Status**

Our client is engaged in a major programme of oil and gas development and exploration in close co-operation with the Libyan National Oil Corporation.

They have retained us to recruit a Systems Programmer for their Technical Data Centre and Computer Department in Tripoli.

Candidates should be professionally qualified with at least ten years relevant experience together with knowledge of the IBM 370/148 system with 2MB memory and the DOS/VSE operating system.

The post carries either married or single status and benefits include free accommodation, BUPA cover, education assistance, a company savings scheme and generous leave with air fares paid.

Please write for an obligatory application form, quoting job reference number and giving brief details of your career history. Those without the qualifications and experience advertised need not apply, and irrelevant applications will not be answered.

JAWABY OIL SERVICE

UMM AL-JAWABY OIL SERVICE CO. LTD.,
Recruitment Co-ordinator, Job Ref. XYR/1
33, Cavendish Square, London W1M 9HF.

(6709)

GLC

Working for London

Software Engineer
Traffic Control Systems Development

The Council's Urban Traffic Control System is one of the largest in the world. This is an opportunity to support the development of the next generation system, comprising a Local Area Network configuration.

In addition to the major task of specifying, developing and implementing system software, there will be supervisory responsibility for system operation together with the installation and commissioning of new equipment and software facilities. The provision of guidance and technical advice to users and management will be an important element of the work.

Applicants must be graduates or equivalent in control engineering, electronic engineering or similar discipline together with at least 2 years real time CORAL or ASSEMBLER programming background within a DEC PDP/RSX 11M or VAX/VMS environment is essential, with experience in distributed systems. This post is suitable for job sharing.

Salary: £12,336–£13,872 inclusive.

For an application form, to be returned by 16th December 1983, write to: Transportation & Development Department, Greater London Council, Room 454B, The County Hall, SE1 7PB or telephone 01-633 3476.

The GLC welcomes applications from all sections of the community, irrespective of an individual's sex, ethnic origin, colour or sexual orientation and from people with disabilities who have the necessary attributes to do the job.

The GLC is an equal opportunities employer

COMPUTER OPPORTUNITIES – NORTH WEST

PROGRAMMER. £10,000+
Fast moving environment using engineering systems, move into the latest technology. Knowledge of CAD, FORTRAN required.

PROGRAMMER. £9,000+
Key position in company, using development software on Intel 8085/8086 micros, using ASSEMBLER, PASCAL and PL/M.

SOFTWARE ENGINEER. £13,000+
"Fast track to the top" using high level control software, work on varied and interesting projects with prospects to Team Leader, knowledge of FORTRAN and PASCAL required.

PROGRAMMER. £9,000+
Assume responsibility in a challenging real-time environment using the latest software techniques and hardware systems, experience of PASCAL and/or MACRO 11 required.

SOFTWARE ENGINEER. £15,000+
Overseas travel allowance, golden opportunity with prestigious software house, developing real-time engineering systems in ASSEMBLER and PASCAL.

Our register of job opportunities is extensive. For an informal discussion regarding your next career move, contact:
PAUL DORAN on 061-832 6056 9a.m.-9p.m.

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your appointments register

Programmers

NCR/IBM/COBOL Insurance Banking	London H. Counties N Eng.	to £15K
COBOL/PL1/OS/CICS/IMS Commercial	H. Counties Midlands - Manchester	to £13K
PASCAL UCS/DP Management information systems	London	to £18K
ICL/COBOL Two years' commercial experience	Notts	to £12K
IBM SERIES 1 Assembler	N. London	to £10K
RPG 2/3 Minimum one and a half years' experience	London/N.E.	to £12K
IBM, DOS, VSE, VMS, CICS, VSAM, DL1, IMS Systems experience	Middx	to £14K+CAR
BASIC Mini/Micro Computers	London	to £15K
IBM/UNIVAC/COBOL On-line/Database	Surrey	to £12K
IBM VS-FORTRAN/VSAM/ISPF MVS/TSO	Sheffield	to £11K

Analyst/Progs

DEC PDP 11 RSTS/E BASIC + Multi-user Realtime comm. applications	Middx	to £12K
IBM 34/38/4341	London/Home Counties/North	to £15K
ICL 1500/ME29/2903 COBOL	Essex/Herts	to £12½K
IMAGE PROCESSING C/UNIX Scientific Applications		to £12K

Hardware/Support

TECH. SUPPORT MANAGER IBM DOS/VSE CICS IDMS	Kent	to £16½K + CAR
SERVICE ENGINEERS S100	London	to £10K
SUPPORT ENGINEER VAX 780/750	UK & Europe	to £17K
APPLICATIONS ENGINEERS Assembler/Micros/Printer Interface	LONDON	to £14K
PROJECT ENGINEER Systems/DEC	Beds/Manchester	to £11K
SOFTWARE SUPPORT Medical/Training/Technical	Berkshire	£NEG

Systems Analysts

IBM 370/125 4341 Commercial on-line systems	Essex	to £11K
CAD/CAM Real time - Modelling	Man/Essex/South West	to £16K
IBM/BURROUGHS Commercial Accountancy	London/Surrey/Manchester	to £15K
VAX/COBOL Banking applications	London	to £15K
IBM/ICL Commercial Applications	London/Midlands	to £14K
IBM SYSTEM 34/38 MAAPICS	Sussex	to £13K

Software Engineers

CORAL/PASCAL/MASCOT/C Communications	Glos/H. Counties/Midlands/Blackburn	to £13K
ASSEMBLER/PLM	Northern England	to £12K
MILITARY SYSTEMS/RADAR Coral - Mascot	Hants/Surrey/Essex/S. West	to £14K
PDP/VAX/INTEL High Level Assemblers	In Derby/Surrey/London/Kent	to £18K
COMMS/TELECOMS/MOD Mini/Mainframe	E. Anglia	to £14K
HP3000/INTEL CAD/CAM/ATE	Home Counties	to £12K
HPA 900/RTE A1 Biotechnology Process Control	London/Wilts.	to £13K

Snr Appointments

PROJECT LEADER Military Systems	Berks/Hants	to £15K
SALES EXECUTIVES Mainframe	Nationwide	to £30K
CONSULTANT Military/Defence	Berks	to £15K
DATABASE ADMINISTRATOR IBM DOS, VSE, DL1	Sheffield	to £16K
PROJECT LEADER RETAIL Management Background	Kent	to £15½K
ICL/PRE- AND POST-SALES SUPPORT	Berks	to £16K
SOFTWARE SECTION MANAGER Pascal/C/Microprocessor	Essex/Middlesex	to £18K

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The Appointments Register

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Hongkong Bank (uk) plc

"Rapid growth and a diversity of business operations are their distinguishing marks."

The UK subsidiary of one of the world's largest banks operates across the whole spectrum of commercial and business finance. Addressing such diversified customer needs demands the most sophisticated yet flexible computer resources. Response to these needs is reflected in a programme that currently involves: KAPITI international banking system development, integrating the Bank within the SWIFT network and augmenting the present System 38 and 34 networked configuration with a second System 38.

SENIOR SYSTEMS ANALYST

To £16,500 plus benefits — **West End HQ**

This new position interfaces between users, O & M and the Computer Centre. The purpose is to evaluate and translate banking requirements through system design to implementation, testing and documentation, ensuring user acceptance. It requires a blend of commercial banking and formal systems experience, preferably using IBM GSD hardware and KAPITI, and will appeal to a free spirit seeking a green field opportunity and management promotion.

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ANALYST PROGRAMMER

North West London
To £11,500 plus benefits

To join a dynamic team in the Computer Centre, developing system modules on KAPITI, as well as becoming involved in communications and micro applications. The position requires either a banking applications background plus System 3/34 experience to be trained on System 38, or fluency in RPGIII combined with experience of or a will to learn banking applications.

Both positions offer considerable scope for promotion and personal advancement within dynamic and friendly environments. The additional benefits comprise subsidised mortgage, free banking facilities, free medical insurance, free season ticket loan plus easily accessible and modern office accommodation. To apply for either positions, please contact their Advising Consultant, **Roger Dorricott** on **01-935 0671** (24 hour answering service) or alternatively submit your Curriculum Vitae to him at the London office address below.

(6658)

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Job Spot

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ANALYSTS
ANALYST PROGRAMMERS

to c.£11,500 + Benefits

Provident Life are an established life assurance company forming part of the world-wide Winterthur Swiss Insurance Group. The Company are situated in pleasant and modern offices located close to Liverpool Street Station. Hardware is based on two ICL2958 processors used to operate several substantial systems and a commitment exists to on-going major development work. Vacancies exist for a number of Analysts and Analyst Programmers to join the existing development section. Analyst Programmers should have a solid ICL Cobol programming background coupled with sound systems experience. Systems Analysts should have about two years' experience ideally in a financial environment. The Company offer a competitive salary and an extensive benefits package which includes a mortgage scheme and non-contributory pension.

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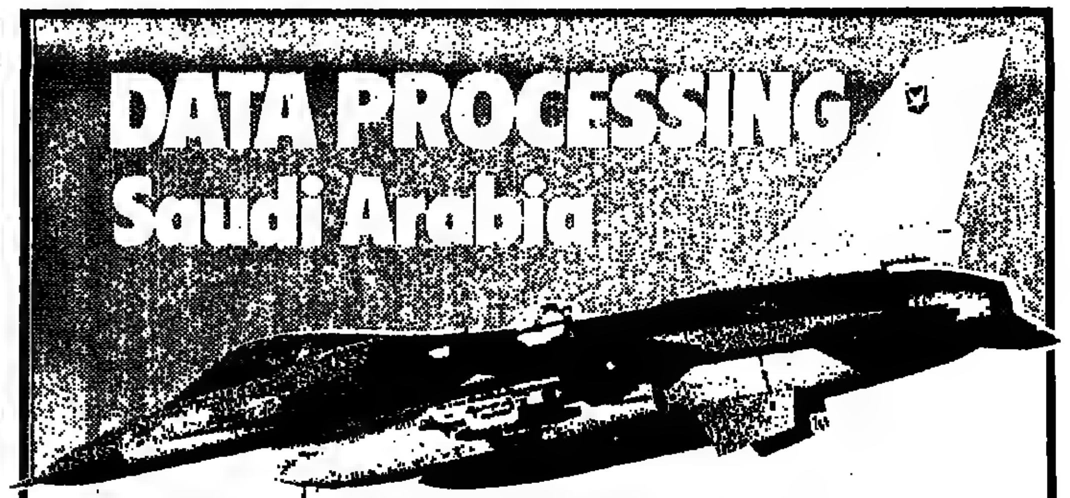
(5700)

DATA PROCESSING Saudi Arabia



A division of a major US high-technology corporation, awarded a contract to provide an automated logistics and management information system, has immediate requirements for the following personnel for its Riyadh office:

SENIOR SYSTEMS ANALYST: c.£25,000
10 years in maintenance systems, preferably military logistics or scheduling and work control.

SYSTEMS ANALYST: c.£20,000
7 years in supply/inventory systems, COBOL programming essential.

PROGRAMMERS/SENIOR PROGRAMMERS: £neg
3+ years in COBOL, preferably real time systems; HP 3000 experience essential.

For the following positions, we are looking for candidates with COBOL, and who ideally have DSN, TRANSACT, INFORM, TDP or DICTIONARY.

SENIOR SYSTEMS PROGRAMMER: c.£25,000
8 years in systems software and 3 years HP 3000.

DATABASE ANALYST: c.£20,000
8 years' experience including IMAGE and DICTIONARY.

LEAD PROGRAMMER: c.£20,000
8 years' experience including HP 3000 systems software

TEST AND INTEGRATION SPECIALISTS: £neg
3+ years experience in testing distributive systems.

The project encompasses a DP centre linked to remote sites to support the function of supply, maintenance and project monitoring. Employment will be for a minimum of 1 year on bachelor status. Excellent benefits include: free accommodation, subsistence allowance, generous leave with 3 home paid tickets per annum, free primary medical care and a contract-completion bonus.

Please telephone 01-937 6586 now. Final interviews will be held week of 12th December for start in January 1984. Webb Whitley Associates Limited, International Recruitment Consultants, 45 Kensington High Street, London W8 5ED. Telex: 892686.

Webb Whitley Associates Ltd.

Project Leaders –
Package to R 33000 + Car

There's room to grow for Project Leaders . . . in Johannesburg, South Africa

The continued growth and expansion within the Computer Services Division of one of South Africa's most successful Organisations has created further opportunities for D.P. professionals to assume responsible and rewarding career positions within their Johannesburg Head Office. The computing environment is highly sophisticated with dual IBM MVS based mainframes, 2 x Prime 750, 3 x HP 3000, DEC VAX and 8100's, fully supported by advanced systems and communications software. The immense scope of the Group's interests provide a unique applications portfolio that extends across mining, commerce, finance and engineering.

To be responsible for the development of a major project (or several smaller ones) and for providing cost and time effective solutions to Client requirements. These positions call for mature individuals capable of attracting Client confidence by ability and directing the activities of teams dedicated to development and maintenance of new and existing systems. A strong development background is sought, ideally encompassing mainframe and large mini applications. The prospects for promotion to Management positions are excellent.

These positions represent challenging opportunities within an Organisation capable of offering good career paths into higher levels of Management.

The salary package is enhanced by generous relocation assistance to South Africa where the high standard of living and favourable climate provides for a unique and satisfying lifestyle.

To hear the facts about these opportunities, contact **Martin Stainthorpe** on **021-236 3781** (24 hour answering service) or on 021-744 1862 (7-9pm evenings and weekends).

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SOMETHING TO BUILD ON
UNIX: SOFTWARE TOOL DEVELOPMENT

THE CHALLENGE

. . . is a vacuum. A vacuum soon to be filled with UNIX software technicians of the highest calibre joining a new company about to take the software tools market by storm.

Have you got what it takes to be part of this new team? Can you work at the forefront of software technology to create the products on which the success of the company will be built?

The new company has the backing of one of the world's most successful high technology organisations. Major contributors to the development of computing, they are now entering the growing market for software products with a high level of investment in people and facilities to ensure success.

UNIX will be the first development area and we are looking for experienced software engineers with the knowledge and personality to make a positive contribution.

THE OPPORTUNITIES

PROJECT LEADER	circa £16,000pa
SOFTWARE DESIGNERS	£12,000pa-£15,000pa
SOFTWARE PROGRAMMERS	£7,500pa-£12,000pa

Successful applicants will have at least a degree and will certainly have experience of UNIX or related software. They will be self-motivated, innovative, professional and capable of taking conceptual ideas and developing creative but robust software tools.

For the more senior positions applicants should have experience of software tools, product development, team leadership and possess the communications skills needed to liaise with clients, the marketing function and other computing professionals.

THE FUTURE

The expanding market and a growing company will provide excellent career prospects for those in at the start. Initial salaries and later progression will be dependent entirely on merit. The excellent benefits package includes generous holidays, contributory pension and health schemes and relocation assistance will be available if appropriate.

The company's prestigious headquarters are located in London's Covent Garden with its fascinating atmosphere of market, restaurants and street theatre close by the cinemas and theatres of the West End.

If you are ready to build on your existing experience in an exciting environment, telephone now or post the coupon and we will send you an Application Form and Company Profile.

0406

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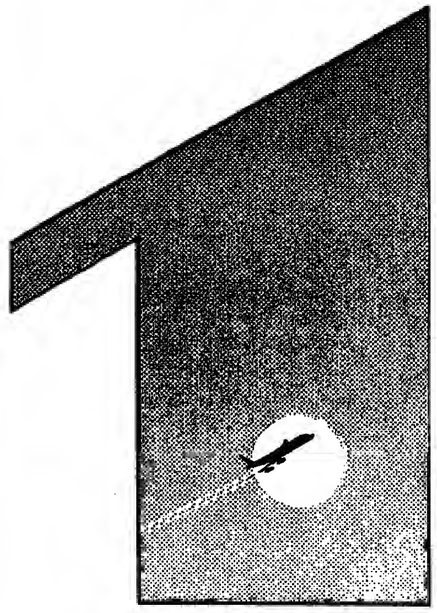

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Recognised as a successful domestic airline British Midland Airways is currently expanding its operation to incorporate a more comprehensive service.

To enhance their Company's operating procedures they are now seeking to enlarge their dataprocessing facilities and develop more advanced systems; they currently operate on IBM 4341 under DOS/VSE utilising COBOL and DL1 and are developing applications for aircraft engineering, purchasing and airline administration.

To aid them in this dynamic development they are seeking to recruit the following team of computer professionals.

Systems Analysts

Ideally you will have the flair and ability to take a project from initial feasibility study is implementation combined with a thorough understanding of COBOL gained within an IBM environment.

Senior Programmers

You will be expected to have approximately 2 year's COBOL experience preferably gained within an interactive IBM environment and the ambition to move into a more analytical role in the near future.

Programmers

A working knowledge of COBOL is preferred but more importantly you must have the ability to develop your skills within this progressive department.

For all the above positions a knowledge of CICS and DL1 would be a definite advantage but not a prerequisite, as it is our practice to assist our employees in their career by providing them with education in the skills required to fulfill their duties.

Rural Derbyshire

Situated in a very attractive location British Midland Airways will offer in exchange for your experience salaries up to 10K plus RELOCATION ALLOWANCE and many other benefits including concessionary air fares.

To take advantage of joining this friendly but progressive Company please contact our Advising Consultant, **Graham Utton** on **021 643 8501** or **05435 3782** eves and weekends. **Computer People Midlands Alpha Tower, Birmingham B1 1TT.**

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The Real Fifth Generation Challenge

Attractive Thames Valley Location **Salaries £8,000 to £14,000 (overtime paid)**

★ Data Dictionary **★ Man/Machine Interfaces** **★ Applications Builders**

We are firm advocates in the belief that the user knows best when it comes down to applications design. That is why we have established a development team with the sole purpose of designing and producing 'Self Assembly' software tools for tomorrow's market.

We wish to attract a number of creative Software Designers and several talented Software Programmers to complete this new development team.

If you have upwards of eighteen month's machine-biased system software experience, primarily of HIGH LEVEL structured languages, we could be of interest to you particularly if you have previous experience in writing:

★ Screen Handling Software **★ Code Generation Software**

Our environment befits a 'leading edge' technology company, where individualism and teamwork are **both** encouraged. Our software people enjoy dedicated desk-top development facilities, with each terminal supporting a comprehensive array of development tools.

The atmosphere at our NEW PRESTIGIOUS offices is relaxed and informal with the accent on creativity.

If you feel you could contribute to this exciting new development project then apply to **Alan Carnell** on **01-935 0671** (24 hour answering service) or 05827 2976 (evenings and weekends 7-9.00 p.m.). If you prefer however submit your detailed Curriculum Vitae to our London office quoting reference A.S.D 1.

(6660)

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Systems Development Manager

West Midlands to £14,000 + two lease cars

As a major UK Company we have a high reputation for product reliability and quality, recognising the need to ensure that both product and production remain cost effective and obviously, competitive. We fully appreciate that in today's world, efficient manufacturing depends upon effective computing facilities, and we intend to maintain our lead in the use of both mainframe and mini computers within all aspects of our business.

We are now embarking on an exciting, decisive and ambitious systems development plan utilising the very latest IBM and DEC technology, and [illegible] CAD/CAM, LAN, WP, etc. As a result our [illegible]

Systems Development Manager (Engineering and Process Control)

We are [illegible] engineering [illegible] CAD/CAM [illegible] the engineering [illegible]

★ *Engineering and Process Control*
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THE EUROPEAN PATENT OFFICE

is an international organisation established for the granting of European patents. Its head-office is in Munich (750 staff). The filing and technical examination are executed at the branches in The Hague (900 staff) and Berlin (130 staff); for this purpose a documentation service of more than 12,000,000 systematically classified patent documents has been organised.

The EDP Department is located in The Hague (Rijswijk). The present installation is an IBM 4341 (8MB) operating under VM with DOS/VSE, power, CMS, VTAM.

The teleprocessing network consists of local 3274 controllers with 200 terminals attached and a 3705 remote controller with 100 terminals attached (Munich and Berlin) plus RJE and a link to EURONET.

The software used is CICS, IDMS, ADS/ONLINE, STAIRS, DCF/DLF and APL.

The EPO is seeking for its branch in the Hague:

PROJECT LEADERS (SYSTEMS ANALYSTS)

They will work in close liaison with other departments for the EDP projects in support of the administration of the Office. They also participate in the technical realisation of the EDP systems.

Applicants must have a university degree, an active knowledge of English and the ability to understand the other two official languages (German and French). At least two years' experience in systems analysis and programming in COBOL is required. For one of the vacant posts, preference will be given to candidates familiar with database management systems (preferably IDMS).

For another of the posts, we seek applicants with experience in one or more of the following fields: electronic publishing, word and image processing, document storage, integrated workstations, etc.

SENIOR PROGRAMMER

for administration projects. A complete secondary education and at least four years' experience with COBOL is required; experience with CICS and IDMS, ADS/ONLINE would be an asset. Furthermore a working knowledge of English and knowledge of French and/or German is required.

We offer very attractive salaries and allowances (free of national tax) and conditions of employment in line with the standards of international organisations such as NATO, OECD, etc.

Further information and application forms are available from: Mr A. P. Brabander, EUROPEAN PATENT OFFICE, DG1 Personnel Department, Patentlaan 2, 2288 EE RIJSWIJK, The Netherlands. Tel: (070) 90.67.89

The closing date for applications is 12th December, 1983

(6644)

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In particular we are looking for:
Commercial and Scientific Programmers ● Systems Software Designers ● Systems Analysts ● Systems Engineers ● Designers/Team Leaders ● Software Programmers/Engineers ● Technical Support Engineers ● Business Analysts ● CICS Consultants ● Chief Engineers (Software) ● Hardware/Software Instructors ● Project Leaders ● and many others

Salaries range from £8,000-£16,000 with ages from 20-40 at various locations throughout the U.K.

To be considered for these and other important career positions all you need to do is post the coupon today to Stuart Tait, The Lansdowne Appointments Register, Park House, 207 The Vale, London W3 7QB. Tel: 01-743 6321 (24 hr answering service).

All posts are open to men and women and our service is completely confidential for companies and jobseekers.

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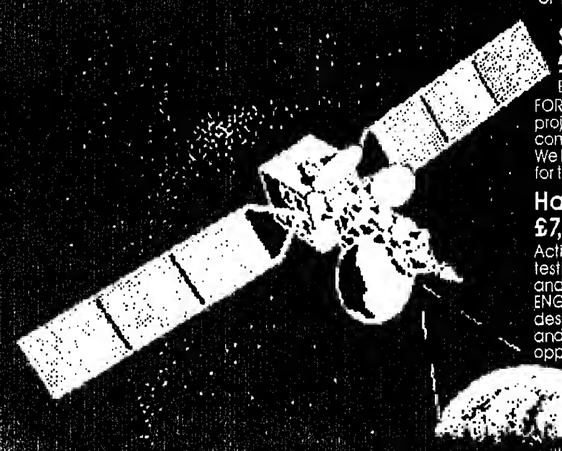
The Lansdowne Appointments Register

INTERCOM DATA SYSTEMS



INTERCOM DATA SYSTEMS were formed to provide a dedicated System House solution to the communication and Information Technology requirements of major companies, banks and Government organisations. With a comprehensive client list, an excellent reputation and a full range of products and services we are in the forefront of technology and now require key staff to match.

Software Engineers and Programmers £10,000-£14,000

Experienced people at all levels in VAX, VMS, MACRO, RSX11M, FORTRAN, REALTIME are urgently needed to work on a variety of projects including VIDEOTEX and NETWORKS. We require competent skilled staff and are ready to convince them to join us. We have several inhouse VAX 11/50s and there are opportunities for travel and user contact.

Hardware and Communications Support £7,000-£9,500

Acting under our Hardware Manager in the installation and testing of new HARDWARE and SOFTWARE PACKAGES both inhouse and in our clients' premises. This position may be of interest to ENGINEERS or people with an ELECTRONICS background with a desire to move closer to software development. Work is varied and TRAINING will be provided as necessary. This is a real opportunity for applicants with aptitude and some experience, preferably on DEC and/or COMMUNICATIONS equipment.

Our working environment is superb with BRAND NEW PURPOSE BUILT offices in WOKING. Long term prospects are excellent and initiative and effort will be rewarded quickly with regular reviews and a policy for promotion based solely on merit.

FOR FURTHER INFORMATION contact our advising consultant, MARSHALL CLIGMAN at Targa Computer Recruitment or at home (Telephone EPPING 76085).

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6 Liverpool Street London EC2M 7NH Telephone 01-283 9941 Telex 894858

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Our new UK Head Office in Brentwood and a new London office establish us even more firmly as one of Europe's leading software houses. The success story of Tangent is impressive by any standards and our rapid growth rate has been matched by the quality and professionalism of our software and consultancy services. Now in our tenth year of business Tangent is a respected force in the software world and our services are in demand by major client companies worldwide. Tangent is interested in hearing from experienced Sales Professionals and also, people with data processing experience wishing to move into sales. Vacancies are in the following areas:

Software Products

Our growing products division markets and supports the Global ACCOUNTING IV range of products for IBM mainframes and the CONTROL/38 range of accounting products for the IBM System 38 market. In addition Tangent also sells MARK IV programming aids and program efficiency products for the IBM market.

Project Development

Our project group undertakes major fixed-price and time and materials projects for clients worldwide. The division specialises in IBM mainframe and System 34, 38 projects and also the Hewlett Packard 3000 range.

Professional Services

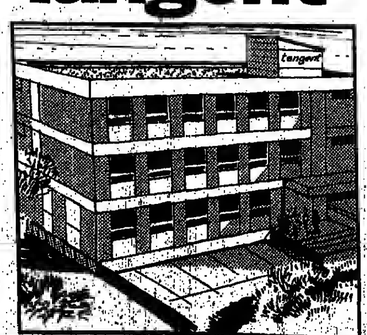
The division provides skilled consulting Systems and Programming staff to work on client location in the UK, Europe and the Middle East our consultants combine both permanent and contract employees.

Tangent offers an attractive package which includes:

- **excellent salaries**
- **attractive commission and incentive schemes**
- **company car**
- **non-contributory pension**
- **comprehensive medical and insurance scheme**

Please contact Susan Buchan on Brentwood (0277) 255755 (24 hour answering service) or write to Tangent Computer Services Limited, Fairfield House, Fairfield Road, Brentwood, Essex CM14 4LR.

Introducing a new chapter in the success story of Tangent



tangent Computing Services Association

success in the Software world

Location; to the North of London: Large IBM environment

Our client is a major IBM user. Their International Data Centre Headquarters is based to the North of London. Because of changes they now wish to fill the following vacancies.

Systems Programmer

(Salary c. £14,000 p.a.)

We are looking for someone with at least 2 years' systems programming experience who during that time will have worked in an MVS/SP environment. The position is particularly attractive as it offers not only the opportunity to support software and hardware in the United Kingdom but also internationally, and will certainly involve some overseas travel. Successful applicants will probably be graduates who will be committed to working in the Systems Programming area.

User Support Specialists

(Salary c. £12,000 p.a.)

These are particularly interesting positions. The successful applicants will have a good knowledge of programming and IBM software and will play the role of the "Systems Engineer" resolving user reported software problems, advising users on how to best utilize current software. At the same time they will ensure that users are aware of new products within this important area.

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(Salary c. £12,000 p.a.)

We are looking for someone with a good knowledge of APL and perhaps TSO over a period of 2 to 3 years. The position will attract someone who has worked within the computer service industry or a large user. Personality and communication skills are very important as there will be considerable contact with users at all levels.

Our client offers an excellent range of benefits and where necessary there will be relocation assistance.

To apply, please telephone Jane Jones today or write to her at: A&A Consultants (Holding) Ltd., County House, 10 Little Portland Street, London W1. Tel: 01-631 4184.

A&A

KINGDOM
COMPUTER SERVICES LIMITED

COMPUTER PROFESSIONALS

Manchester, The Potteries, Herts.

Our clients in the above areas are currently seeking contract staff to undertake a variety of assignments.
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Hardware: ICL – 2900, ME29, DRS; DEC – VAX, PDP
Software: COBOL, CICS COBOL, IDMS, VME, TPS, SCL, VMS, RSTS
For an initial discussion please phone Liz Segal, 061-928 2227 (days), 061-928 5486 (evenings and weekends) or, send her your c.v. to: Interoffice House Old Market Place, Altrincham WA14 4DL.

(857)

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Duport Computer Services Ltd.
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OTE £18K+Car

Duport Computer Services Limited, a major Computer Services Company, are continuing their steady growth and plans for further expansion will reinforce their activity in many significant sectors of the computer services industry.

They currently require an experienced and self-motivated sales executive to sell micro computers and small business systems together with a wide range of commercial applications software.

The successful candidate will have a good track record in the Computer Industry, preferably with experience of selling micros or small business systems. The position offers a competitive basic salary realistically achievable on target earnings, and represents a real career opportunity for an ambitious and professional individual.

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Our Blue Chip Client is one of the best-known international companies in Information Processing with an up-market range of equipment and software backed by full sales and engineering support.

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This international Bank requires applicants with Systems '38 RPG3 backgrounds along with 1-2 years banking experience plus a minimum of 4 years in D.P. This is an excellent opportunity. Solid 3/4 people will be considered. REF SN 111

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With a minimum of two years solid COBOL programming you can have the opportunity to work for this well known company. Machine experience is irrelevant and training to analyst/programmer level will be given. An accounts background would be helpful. REF SN 711

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ANALYST/PROGRAMMER
WEST END — £9-10,500

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in your very best interests for now and January ring Warwick, Cathy or Sue.

01-831 6405
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Contractors

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COBOL TANDEM PROGRAMMERS ASAP/JAN LONDON REF CW

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Resources International Ltd, 18-19 Sandlands Street, Bedford Row, London WC1R 4LL

8100

PROGRAMMERS/ANALYSTS

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(6652)

GMS

Information Systems Manager

South Wales Salary negotiable

The British Telecom Factory at Cwmcarn, near Newport, Gwent, is responsible for the manufacture and repair of telecommunications customer products and employs over 1,100 people.

As a result of recent reorganisation and expansion, we now wish to fill the newly created post of Information Systems manager.

Your brief will be to act as the management specialist on all matters relating to computer policy, to develop existing computer systems and, where necessary, implement new ones; and take control of all computer budget expenditure.

You will head your own small department and will be involved with the implementation of a large new mini-computer system featuring advanced data base techniques, together with two other systems.

For the right person, this post will prove an attractive computer management and operations opportunity, where the systems comprehensively cover all manufacturing aspects, from stock control through to financial reports, including production and management information.

Ideally, you should have a degree or equivalent, or possess a professional computing qualification. Certainly you must have 3 years' experience at the very least in the computer field, including programming and computer operations, and some systems design. You will also need to show proof of managerial ability, or that you have the potential for it.

Salary will be negotiable, depending on age and experience, and relocation expenses are available, where appropriate.

For an application form and further information, please contact Jayne Broom, Personnel Department, British Telecom Factory Telephones, Cwmcarn, Crosskeys, Newport, Gwent NP1 7ZB. Tel. (0495) 270521. Applications are invited from men and women.

British TELECOM

Teleprocessing Network Controller

c. £8250 — Horsham, W.Sussex

Sun Alliance is one of the UK's leading insurance groups with sophisticated computing and communications facilities including an IBM 3081 operating under MVS SP1.3 supporting an expanding 800+ terminal network using IMS as its DB/DC system.

We are also developing our utilisation of IBM 8100 systems under OPPX, and the Horsham computers have a cors-to-cors link to our second installation at Birmingham.

We are looking for a TP Network Controller with 2-3 years relevant experience in a large IBM-based environment using VTAM/NCCF.

The successful applicant will have proven experience in fault determination and liaison with engineers, and will be a self motivated and capable staff supervisor.

We offer excellent large company benefits including:

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- * flexible working hours
- * extensive sports/social facilities

Please contact David Lugton, Manpower Services Advisor for an application form and further details on 01-588 2345 ext. 1027 or write to him at Sun Alliance Insurance Group, 1 Bartholomew Lane, London EC2N 2AB.

SUN ALLIANCE INSURANCE GROUP

Teachers' Association in Eastern Kings Cross area has a vacancy for a

PROGRAMMER

in a small unit.

Must be experienced in C.M.S. COBOL Programming in a Burroughs environment, and capable of working on own initiative.

The Association operates a 8800 Computer principally for Membership records but with new development work envisaged.

A broad-based enthusiastic outlook on all computer related matters will be advantageous.

Salary (under review) within range £7,386 to £9,600 per annum gross. 32½ hour week, good conditions of service, pension scheme, L.V.s etc.

Application form and further details from Mrs J. Page, Telephone 01-387 8808 Extension 6. (6754)

GROUND FLOOR OPPORTUNITY

SURREY — £8-£10K + car

Our clients are a small consultancy with a full order book for customised, micro-driven office networks. This is a unique opportunity for an ambitious and able **PROGRAMMER** with an aversion to "the big company".

As understudy to a top consultant, you will enjoy new languages, software, techniques, etc., meeting customers, implementing new applications in a wide range of industries; there are really prospects for partnership status.

If you have a good academic background, one year or more commercial programming and want 'something different' – then ring for details now. Ref: G1071.

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c£9,000 — N.W.London

My client is part of a company with a highly respected international reputation in a growing market.
Their D.P. System is ICL 2955 (2 meg) under DME GII + and they are about to incorporate manufacturing control using OMAC 29. You will have a minimum 18 months' COBOL experience and be able to work without supervision. Knowledge of FILETAB and DME GII + will be a distinct advantage.
Generous benefits will include pension scheme and 25 days' holiday.
This is a small developing D.P. Department where you will not be just a number and where you will have plenty of scope for user contact and creative programming.
To join this expansion programme send your c.v. to:
Tony Farrell, PER
4-5 Grosvenor Place
London SW1X 7SB
Tel: 01-235 7030

(6744)

PER Executive Selection

CONTRACT PROGRAMMER

DEC Basic + 2 RSX II-M (or RSTS) DECEMBER start, 3 months – CAMBS.

Phone: Jeff Boston on 01-930 4041 (office) or Kingsclliffe 428 (home).

FRASER WILLIAMS RECRUITMENT AND TRAINING

(6629)

2 SYSTEM OPERATORS

required for busy multiple Alpha micro site in E.C.1. Some shift working. Alpha/Dec and Datacomp experience an advantage. Salary up to £10,000.

Ring J. Hopson on 01-250 3922. (6749)

BOX NUMBERS

Box number replies should be addressed to:

Box Number .....

c/o Computer Weekly
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS

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THE FASTEST GROWING CAREER ENVIRONMENT IN THE WEST –

Tangent are a leading international Software House. Now, with the opening of two new offices in the States we can offer many more D.P. people the opportunity of Contract or Permanent positions throughout the USA.

CONTRACT — 3, 6 or 12 month assignments with the possibility of joining us on a permanent basis.

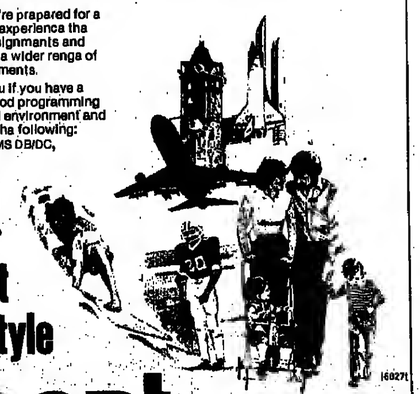
PERMANENT — If you're prepared for a degree of mobility, you'll experience the challenge of different assignments and have greater exposure to a wider range of applications and environments.

We'd like to hear from you if you have a minimum of 2/3 years' good programming experience within an IBM environment and a knowledge of some of the following:
COBOL, CICS, DL/1, PL/1, IMS DB/DC, RAMIS/FOCUS, TSO/SPF, VSAM, NOMAD, S34, S36, S38.

One phone call to us and we'll provide an information sheet to help you make up your mind.

Just think, by joining us between now and February you could be living and working Stateside.

Ring Mike Mead on Brentwood (0277) 255755. (24-hour answering service). Tangent Computer Services Ltd., Fairfield House, Fairfield Road, Brentwood, Essex CM14 4LR.



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Computing Services Association

success in the software world

(6027)

PUBLIC SECTOR APPOINTMENTS

ANNOUNCEMENT

UNIVERSITY OF QATAR
STATE OF QATAR

Applications are invited for the following posts at the Computer Centre:

Post (1): Analyst/Programmer:

Qualifications and experience:
- A degree in Computer Science or a closely related subject and a Diploma in Computing.
- A minimum of three years' solid commercial or university administration programming and a minimum of two years' experience in Systems Analysis and Design.

JOB: Main duties include Analysis, Design, Implementation and Support of university administrative systems.

Post (2): Senior Programmer:

Qualifications and experience:
- A degree in Computer Science, plus a minimum of five years' relevant programming experience, preferably in an educational institution.

OR
- A degree in a related subject and a Programming Diploma, with a minimum of six years' experience.
- Solid experience of programming in Fortran, Cobol and Basic is required.

JOB: Main duty as the provision of computing services to staff, researchers and students, as well as administrative systems programming.

Post (3): Programmer:

Qualifications and experience:
- A degree in Computer Science, and minimum of three years' experience.

OR
- A degree in a related subject and Programming Diploma, with a minimum of four years' solid experience.
- Experience of Cobol programming in a commercial or university administration environment is required.

Knowledge of Fortran and Basic would be considered an advantage.

SALARY:

(1) **Post (1) and Post (2)**
QR. 7200-7950 per month inclusive (according to qualifications and experience).

(2) **Post (3)**
QR. 6000-6750 per month inclusive (according to qualifications and experience).

Fringe Benefits:
- Free, air-conditioned, furnished accommodation.
- Free medical treatment.
- Economy class tickets for the staff member, his spouse and up to three children under 18 years of age.
- Salary income and attached allowances are tax free.
- An interest-free car loan of $4132 is extended to the staff member upon his arrival.

PS: Preference will be given to candidates with Arabic Knowledge, for all above posts.

Applications, together with non-returnable copies of academic qualifications, are to be addressed within 30 days of this Advertisement to:
Director of Computer Centre, Qatar University, P.O. Box No. 2713, STATE OF QATAR

(4477)

WARRINGTON BORDUGH COUNCIL
BORDUGH TREASURER'S DEPT

PRINCIPAL OPERATIONS ASSISTANT

PO1 (1-5) (£9,945-£11,052)

This is the principal operations post within the section, reporting and responsible to the Computer Manager for the satisfactory scheduling and organisation of the entire Operations Section, comprising mainframe, data preparation and control sections.

At least five years experience at a Senior level in a Computer Operations Department is required, preferably on ICL equipment. Experience of the management and control of staff is essential, together with a sound knowledge of hardware, software and communications.

The successful applicant will be responsible for the provision of an adequate level of computer service to all departments of the authority, Warrington and Runcorn New Town, and Cheshire Area Health Authority.

The Council's computer is an ICL 2956 running under OME with approximately 60 terminals. Plans have been made to replace the current machine in 1984 with an ICL 2958 running under OME.

Application forms and job description are obtainable from the Personnel and Management Services Offices, Town Hall, Warrington. (Tel: Warrington 36961 Ext 32) to whom completed forms should be returned by Monday, 12th December, 1983.

(5677)

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ilea Inner London Education Authority

Director of ILECC

Inner London Educational Computing Centre
John Ruskin Street
SE5 0PQ

This is a re-advertisement

Salary Range: £13,812-£15,462 (under review) plus £1,284 L.W.A.

ILECC provides hardware and software support for the computing resources used by ILEA's schools, colleges of further and higher education services: potentially over a thousand institutions.

Applications are invited for the post of Director of ILECC. This is a senior appointment to run a well-equipped, well staffed centre. The successful candidate will have had extensive experience of computing. He/she will have demonstrated ability to manage a professional team dealing with all aspects of computing.

Application forms and further details are available from: The Education Officer, EO/Estab 1B, Room 385, The County Hall, London SE1 7PB. (Please enclose a stamp addressed envelope). Closing date for the return of completed application forms is 12th December, 1983.

ILEA IS AN EQUAL OPPORTUNITIES EMPLOYER

(6694)

COUNTY TREASURER'S DEPARTMENT

The County Council with offices in Barnsley have two 2966 4 MB ICL Computer Systems supporting considerable real-time, remote batch and conventional batch processing running under DME/G3 operating system.

Work is currently in hand to introduce message routing software on the 7906 FEP to give terminal access to both systems.

Applications are invited from suitably experienced persons for the following post:—

Systems Analyst

Post Ref. T251 **Grade Sc5/6**
Salary £7,191-£6,712

Applicants should have wide technical experience preferably using data base techniques. The successful applicant will be involved in the development of a wide range of systems for all departments of the County Council on both mainframe and mini/micro computers (whichever is the best medium).

The County Council operates a system of flexible working hours and payment of removal expenses, lodging and travelling allowances will be made in appropriate cases.

Please write for an application form, quoting the post reference, to the Chief Executive (Personnel), South Yorkshire County Council, County Hall, Barnsley S70 2TN or telephone Barnsley (0226) 98141 Ext. 268.

Closing date for applications will be 12th December, 1983.

South Yorkshire County Council is an Equal Opportunities Employer.

South Yorkshire County Council

(5711)

BOX NUMBERS

Box number replies should be addressed to:

Box Number .....

c/o Computer Weekly
Quadrant House, The Quadrant
Sutton, Surrey SM2 5AS

Analyst/Programmer

£7,788-£11,136 pa inc ***London, N11***

A challenging opportunity within the User Applications team in Middlesex Polytechnic's Academic Computing Service.

Staff and students use an increasing variety of applications packages by means of a network based on OEC System-10 and Prime 550 systems and large numbers of microcomputers.

Responsibilities involve the implementation and maintenance of software in these applications areas: Statistical and Survey Analysis; Simulation and Modelling; CAI/CAL and Information Systems.

A degree in a numerate discipline is expected, together with at least three years' computing experience, including use of modern operating systems, system design, Fortran and at least one other high-level language, documentation writing and user liaison.

Write quoting ref N132A for further information and an application form, posting first-class to: Personnel Office, Middlesex Polytechnic, 114 Chase Side, London N14 5PN. Closing date December 5.

Middlesex Polytechnic

(5675)

ESSEX WATER COMPANY

COMPUTER SHIFT SUPERVISOR

£8,800-£10,400

Our computer installation currently has twin ICL 2955 computers which run under OME/2 environment. A large TP network is supported together with an advanced IDMS database application. Development plans include other IDMS applications for use within the water industry and conversion to VME/2900 environment.

For this position at least three years' operations experience is required with a detailed knowledge of experience of the following:

DME/2, VME/B or VME 2900 Operations Environment
Supervision of Staff
Controlling the running of shifts
User Liaison and Control
JCL and/or SCL
Communication Networks

The above salary range includes 12% Shift Pay, based on a two-shift system, five-day working week.

Please write to: Mr H. D. O'Neill, Computer Operations Controller for an application form or telephone him on extension 324 or 321.

ESSEX WATER COMPANY
342 SOUTH STREET, ROMFORD
ESSEX RM1 2AL
Tel: ROMFORD 46076

PUBLIC SECTOR

LONDON BOROUGH OF HAVERING
Housing Department

HOUSING PROGRAMMER

Grade APTC Scale 3/4
Salary £6,237-£7,602 inclusive

This is a key post in a progressive Housing Department with a considerable commitment to the use of High Technology in the Housing Service.

The Department has a network of computer equipment based on a central OEC PDP 11/44 programmed in Basic + and peripheral Olivetti TC 800s programmed in Assembler. Most aspects of Housing Management for the Council's 17,500 dwellings are computerised and the successful candidate will be expected to deal with the maintenance of existing software and new software developments in housing and associated fields.

Ideally the successful candidate will have some experience of Basic + running on a OEC Series II mini under RSTS/E, together with an appreciation of the OEC and Olivetti hardware and on-line real time communications. Candidates should be able to work under pressure and have had some experience in business systems, database systems and/or property management systems. Suitable training will be given if necessary.

Application forms and job description available from the Housing Manager, Mercury House, Romford RM1 3QT. Tel: Romford 66999, ext. 428.

Closing date: December 9, 1983.

(5714)

Inner London Education Authority

ILECC – Inner London Educational Computing Centre
John Ruskin Street, London SE5 0PQ

PROGRAMMER/ANALYSTS

(Prof. B/C):—

Salary range – £7,338-£12,588 plus £1,284 L.W.A.

Vacancies exist for programmer/analysts to (i) work on software development for the support of educational users in schools and colleges and (ii) for work on developing CAL packages in a wide variety of disciplines for use on RML 380Z, 480Z microcomputers and (iii) for work on developing applications packages for two PRIME 850s. The programmer/analysts recruited should be people with a variety of language and software experience. Teaching experience is not essential.

Application forms and further details are available from:– The Education Officer, EO/Estab 1B, Room 385, The County Hall, London SE1 7PB. (Please enclose a stamped addressed envelope.) The closing date for the return of completed application forms is 9th December 1983.

ILEA is an equal opportunities employer

(6570)

TEESSIDE POLYTECHNIC
COMPUTER CENTRE

PROJECT MANAGER

Post Reference No. P.CU.06

Grade: PO1(c). Salary: £10,938-£11,703 per annum.

To lead a team of programmer/analysts in the design and production of software for the Administrative work of the Polytechnic. This software is being written using a powerful and sophisticated management information system on a Prime 750 computer.

The post offers an ideal opportunity for a systems analyst or experienced programmer to further their career by moving into a management position in one of the leading Computer Centres in the educational field.

Application forms and further particulars from: The Personnel Section, Teesside Polytechnic, Borough Road, Middlesbrough, Cleveland TS1 3BA. Telephone: Middlesbrough (0642) 218121, Extension 4114.

Closing date for applications: 9th December, 1983.

(6694)

FRENCHAY HEALTH AUTHORITY

SOFTWARE ENGINEER

FRENCHAY HOSPITAL

Salary scale: Up to £8,000 p.a. dependent on experience and qualifications.

Computer Scientist required to join the computing section of the Department of Medical Physics at Frenchay Hospital.

Medical Physics is a multi-disciplinary department and the computing section is responsible for all aspects of any computer work undertaken within the Authority. Work is carried out on a considerable number of PDP 11s and micros. The computer section works on a very broad spectrum of applications, and this post will primarily be involved with patient administration systems written in MUMPS.

Applicants should have a very sound grounding in software and an appreciation of hardware. Knowledge of DEC hardware and software, particularly MUMPS, would be an advantage.

Application form and job description available from the **Personnel Department, Frenchay Hospital, Bristol BS16 1LE. Tel (0272) 565656 ext 578.**

Closing date 5 December, 1983.

(5710)

EDUCATION DEPARTMENT
MONKWEARMOUTH COLLEGE OF FURTHER EDUCATION
DEPARTMENT OF SCIENCE AND TECHNOLOGY

SENIOR LECTURER/COLLEGE CO-ORDINATOR FOR COMPUTING

£10,663 - £12,552

Applicants should have appropriate qualifications and experience.

The successful candidate will be expected to lead the Computer Section and to co-ordinate the provision of computing throughout the College.

Duties to commence: 1st May, 1984.

Application forms and further details available upon receipt of a stamped, addressed envelope from the Principal, Monkwearmouth College of Further Education, Swan Street, Sunderland, SR5 1EB.

Closing date for applications: Two weeks after the appearance of this advertisement.

borough of sunderland

(5728)

Essex County Council
CHELMER INSTITUTE OF HIGHER EDUCATION
School of Computing

SENIOR LECTURER IN COMPUTER STUDIES

A suitably qualified person is required as soon as possible to teach at Higher National Diploma level.

The Institute was recently selected by the Government as a centre for expansion of Computer Studies courses.

Applicants will preferably have had commercial data processing experience and should have specialist knowledge in one or more of the following areas—

Business applications of computers; Information systems analysis, design and management; current systems analysis and design methodologies; database system design and implementation.

Salary: Senior Lecturer £10,683-£13,443 (bar at £12,552) per annum.

Application forms and further details from Principal Administrative Officer, Chelmer Institute of Higher Education, Victoria Road South, Chelmsford CM1 1LL. Telephone Chelmsford 354491, Ext. 247. Closing date: December 9, 1983.

(5715)

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Programmer in the Microprocessor and Microcomputer Laboratory

Applications are invited from men and women for the above post tenable for a fixed term of three years from a date as soon as possible. The post involves the development of software and the analysis of software problems. However, the solution of associated hardware problems is also an important aspect of the work, for example problems involving the interconnection of microcomputers and maintenance. A relevant degree and considerable experience with microcomputers preferred. Programming experience should include both high- and machine-level languages. Initial salary in the range £8,310-£7,830 a year on Grade 1B for Other Related Staff, rising to £8,530 a year. Particulars from the Registrar and Secretary (Staffing), the University, Sheffield S10 2TN to whom applications (6 copies) including the names of three referees should be sent by 15th December, 1983. Quote Ref: R11/6B

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Department of Technology
Computer Unit

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Further details of this post, together with application form, may be obtained from:
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A prestigious company is seeking an additional analyst/programmer for manufacturing, marketing and distribution development projects based on IBM and HI*3000 equipment. Excellent opportunities and conditions.
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ICL COBOL
Avon **to £9,000**

Our client is seeking an ICL COBOL programmer for development of on-line commercial systems. Experience should ideally include VME and DME. Good relocation package.
Ref: 24/2 Alison Jary

Analysts and Programmers
North Midlands **to £12,000**

Due to continued expansion this computer services company has opportunities for analysts with manufacturing systems experience, and programmers with good IBM COBOL. Excellent salaries and relocation if appropriate.
Ref: 24/3 Barry Turton

IBM Programmers
South West **c£9,000**

Opportunity exists with well-established company for IBM programmers with a minimum of 12 months COBOL and/or PL1, preferably with on-line experience, for maintenance and development of commercial systems. CICS and DL/1 would be an advantage.
Ref: 24/4 Alison Jary

IBM COBOL Programmers
Cheshire **to £10,500**

This well-known organisation is seeking additional IBM COBOL programmers. You should have at least two years' relevant experience and be educated to 'A' levels or above.
Ref: 24/5 Barry Turton

To discuss these vacancies, contact the consultant concerned on 0270 627206 during the day, or evenings/weekends: Barry Turton on Alsager (093 63) 4743; Alison Jary on 0270 625436.

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DRX, CIS-COBOL	Programmers
SYSTEM 25, ASSEMBLER	Programmers
OTHERS	
HONEYWELL DPS 8, COBOL, DM1V, TP	Analyst
CORAL 66	Analyst/Programmers
PRIMOS, COBOL	Analyst/Programmers
HONEYWELL L8, COBOL & S/WRITE	Analyst/Programmers
VAX 11/780 or 830, VMS/MACRO 32	Programmers
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MARCOL Computer Systems 01-402 9355

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PRODUCT DEVELOPMENT MANAGER — LONDON — c.£18,500
The overall responsibilities for this position will include management of a technical group involved in detailed design, development and testing of a new product based upon an outline specification. Ideally, the applicant will have experience of MICRO COMPUTERS, and knowledge of ASSEMBLER, FORTRAN and PASCAL and be able to provide technical backup to the staff. Excellent company benefits apply. Ref: D452

TECHNICAL SUPPORT MANAGER — SURREY — £17,000++ Benefits
Large financial organisation needs a Technical Support Manager to take charge of a small team of Systems Programmers and Network Controllers. The successful applicant should have good management/supervisor skills, together with DOS/VSE VM in a networking environment, is CICS, SHADOW, etc. Knowledge of MINIS, eg WANG would be a distinct advantage. This position would ideally suit a Senior Systems Programmer wishing to further his/her career opportunities. Ref: C1255

ANALYST CONTROLLER — LONDON — £16,500+Car
Our client, a major manufacturing organisation requires an experienced Analyst with IBM expertise to direct and co-ordinate the design and implementation of commercial applications. Ref: B1088

SENIOR ANALYST — to £16,500+Relocation
Our clients require someone with a minimum of 4 years' analysis/design experience gained within an IBM/MVS, CICS/IDMS environment. The successful applicant will be required to take control of the development of large scale projects using the latest online and database techniques. An excellent career path and company benefits apply. Ref: A1245

TECHNICAL SERVICES MANAGER — MIODX — c.£15,000+ Car
Our client, a leading manufacturing group is seeking someone with in-depth knowledge of MVS, CICS, and VTAM together with the ability to plan, control and co-ordinate technical staff. Occasional overseas travel. Ref: B1259

PROJECT MANAGER — BERKS — £15,000+Relocation
Our client, a large manufacturing company is looking for someone to take charge of a small team of Analysts and Analyst/Programmers, and to run projects from feasibility through to implementation in an IBM DOS/VSE environment. The successful applicant will have 4 years' DP experience and be currently holding a supervisory position. Usual large company benefits apply. Ref: D781

PROGRAMMERS & ANALYSTS — MIDDX — to £15,000+
This major IBM User needs all levels of development staff to work on a wide variety of commercial applications and software packages, in an MVS, IMS VTAM environment. A working knowledge of PL1 or COBOL and/or ASSEMBLER is essential for these positions. Excellent career opportunities and benefits package apply to this large diverse organisation. Ref: C1235

SOFTWARE ENGINEER — HERTS — to £15,000+
Major organisation requires a Software Engineer with 2-3 years' FORTRAN experience in a DEC/VAX, VMS environment, to work on a wide variety of realtime systems. A knowledge of UNIX would be useful. Excellent prospects and large company benefits apply. Ref: C1197

PROJECT LEADER — LONDON — c.£15,000+
Large international financial organisation needs someone to take a leading role in the development of major online commercial systems in an IBM DOS/VSE, CICS environment. A vacancy also exists for a PROGRAMMER/ANALYST with a minimum of 4 years' experience using IBM COBOL in a CICS environment, where a salary of c.£12,500 is offered. Excellent prospects and benefits apply including PROFIT SHARE. Ref: C1234

RPG2/3 PROGRAMMERS & ANALYST PROGRAMMERS — to £14,000+Benefits
A large number of our System/34-38 clients, based in London, Home/Southern Countries need Programmers and Analyst/Programmers with 1-2 years' RPG2 or RPG3 experience. Application areas include Banking, Insurance, and other commercial systems. Benefits include subsidised MORTGAGE, BUPA, Life Assurance, NC Pensions, etc. Ref: C1228

SYSTEMS ANALYSTS — MIOOX — £14,000+
Major Software House needs 2 Systems Analysts to work on realtime Banking/Financial applications. A working knowledge of FORTRAN is essential for these positions. DEC/VAX experience is preferred. Excellent prospects and benefits apply. Ref: C1053

SYSTEMS PROGRAMMERS — MIOOX — £13,000+
Ideally the successful applicant will have at least 3 years' MVS/JES 2 COBOL experience together with the ability to provide support for all production problems. Ref: B1091

TANDEM PROGRAMMER — LONDON — c.£13,000
This major Software House needs a Programmer with 2 years' TANDEM experience using either COBOL or TAL to assist in the development of commercial or scientific applications. Ref: D1184

DATABASE ADMINISTRATOR — BUCKS — £13,500
(ANY MAINFRAME)
The ideal applicant for this international medical research company will have created and implemented database systems of different sizes and will assist in the management of their Services Team within an HP 3000 environment. Candidates with any MAINFRAME background may apply. Excellent remuneration plus paid overtime. Ref: D1126

DEC SOFTWARE SYSTEMS ENGINEERS — to £13,000+Relocation
Our clients, based in London and Surrey require people with at least 2 years' DEC RSTB and/or VMS/RSX11M, ideally with a knowledge of MICRO COMPUTERS. Many attractive company benefits are offered, including a PROFIT SHARE scheme and RELOCATION where necessary. Ref: E1226

ANALYST/PROGRAMMERS — LONOON — to £13,000
This commercial organisation needs Analyst/Programmers with 3 years' FORTRAN experience, preferably with DEC RSX11 or VAX/VMS expertise. Excellent benefits include a company profit sharing scheme. Ref: E1219

ANALYST/PROGRAMMERS — MIOOX — to £12,500
Large commercial organisation is seeking Analyst/Programmers with 2 years' PL1 or COBOL to join their existing systems development group, and working closely with clients, and group information services staff in a technical business environment. A knowledge of CICS and IMS (or IOMS) would be a distinct advantage. Excellent career path and benefits apply. Ref: D1084

SYSTEMS INSTRUCTORS — LONOON/MIOOX — £12,000+
This well-known organisation, highly skilled in the training of all levels of development personnel, is seeking two talented Analysts with communicative skills, to impart the knowledge, techniques and disciplines of Systems Analysis. A programming background is also an important attribute for these challenging and responsible positions. Ref: C1237

DEC VAX PROGRAMMER — LONDON — £12,000
Our clients, an international manufacturing organisation is seeking someone with a minimum of 12 months' DEC VAX/COBOL experience to work on the development and implementation of financial applications. Excellent career path and benefits apply. Ref: E1217

FORTRAN PROGRAMMERS — BERKS — to £12,000
Programmers with at least 1-2 years' FORTRAN experience, preferably having worked with DEC/VAX or PRIME are required by our client to work on new development projects for their Management Information Services. Excellent company benefits apply. Ref: E1219

PL1 PROGRAMMERS & ANALYST/PROGRAMMERS — to £12,000+Benefits
A number of our clients situated in Middlesex, Surray, London, Berks and Bucks need Programmers and Analyst/Programmers with a minimum of 12 months' PL1 experience working in IBM DOS/VSE and MVS environments. Application areas include development of commercial and insurance systems. Benefits range from MORTGAGE facilities, Medical Insurance, Subsidised meals, etc. Ref: C1241

DEC PROGRAMMERS — BUCKS — to £12,000
Our client, an expanding International Software House, needs Programmers and Programmer/Analysts to compliment their existing teams. The successful applicants will have commercial applications experience gained within a DEC RSX11 environment using BASIC+2. Excellent working conditions and career path apply. Ref: D1063

OEC PROGRAMMER — LONOON — c.£11,500
Our client is seeking someone with at least 3 years' COBOL experience, with familiarity of realtime applications. Excellent career path into Analysis is guaranteed. Ref: B1110

PROGRAMMERS — HANTS — £10,500+PROFIT SHARE+MORTGAGE
Major financial organisation needs Programmers with 1-2 years' COBOL and/or FORTRAN experience to work on major new commercial projects, in a UNIVAC 1100 environment. Knowledge of Jacksons Structured Programming (or similar) would be added advantage. Excellent benefits package includes PROFIT SHARE schema, subsidised MORTGAGE facilities, NC Pension, etc. Ref: C1225

PROGRAMMER — LONOON — to £10,500+Relocation
Major insurance company needs a Programmer with 12 months' PL1 experience to work on major new projects in an IBM DOS/VSE, VM, TOTAL environment. A knowledge of MINIS would be useful, eg WANG although training will be given, as the company moves towards "new technology" systems. Ref: D1260

6 MONTHS RPG3 — KENT — c.£10,500
Large financial consortium is seeking an ANALYST/PROGRAMMER with at least 6 months' RPG3 experience. Familiarity with Financial/Insurance applications is preferred, together with ability to liaise at User level. Many attractive benefits are offered. Ref: B1267

HONEYWELL PROGRAMMERS — LONOON — £10,000++
Leading financial organisation requires Programmers with 18 months' COBOL experience, ideally gained on HONEYWELL Level 64 or 66 hardware. Excellent working conditions and benefits include MORTGAGE, BONUS, etc. Ref: B1258

IBM PROGRAMMERS — SURREY — c.£10,000+ Benefits
18 months' IBM COBOL is required for this international manufacturing organisation. Successful applicants will be assigned to the development of major new projects on an IBM 3033 mainframe using MVS. A knowledge of IOMS would be an advantage. A structured career path together with FREE LIFE ASSURANCE, and BUPA apply. Ref: A1107

ICL PROGRAMMER — SURREY — £10,000
Leading Software House is looking for someone with 3 years' ICL COBOL experience, preferably with TME and TP experience. A knowledge of MICRO COMPUTERS would be useful. Excellent career prospects and good company benefits apply. Ref: E1247

OPERATIONS

TECHNICAL SUPPORT/OPERATIONS MANAGER — c.£16,000+Car
Our client based in Surrey, is seeking someone with a minimum of 4 years' DOS/VSE, CICS experience together with man-management skills to take combined control of the day-to-day running of the Operations and Technical Support departments. This position would ideally suit a Systems Programmer seeking to further their career in management. Excellent salary and company benefits are offered in return. Ref: A1248

DEPUTY OPERATIONS SUPERVISOR — LONOON — £10,000++
Our client is seeking to recruit someone with a sound knowledge of OME and VME Operating Systems. The ideal applicant must currently be in a supervisory position together with familiarity of SCL, Data and Network Control. Excellent benefits include MORTGAGE, BONUS, etc. Ref: A1262

ICL OPERATOR (2 shifts) — CITY — c.£7,500
Our client, a leading international financial organisation requires an Operator with approximately 18 months' VME/B experience. Excellent prospects and benefits are offered. Ref: A1244

JUNIOR IBM OPERATOR — SURREY — to £7,000
A minimum of 12 months' OOS/VSE, CICS experience is required to this expanding 4341 installation. Excellent career path and benefits apply. Ref: A1249

DATA CONTROL CLERKS — LONDON/SURREY — to £7,000
Two of our clients are seeking Data Controllers, with a minimum of 2 years' experience, for their expanding divisions. Excellent career paths apply in both cases, together with good company benefits. Ref: B/GEN

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Ref. D: 01-387 2152
Ref. E: 01-821 8554
The above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives.
[6683]

SYSTEMS PROGRAMMERS — UK/ABROAD — £25,000+
An international Software House needs highly motivated D.P. professionals for exciting new customer support projects at home and abroad. Applicants must have 3 years' systems programming experience with a sound technical background of MVS/JES, CICS and other associated IBM software. The company is offering an excellent remuneration package together with outstanding career progression. Ref: A960

SENIOR ANALYST/PROGRAMMER — LONDON — to £18,000
Major Software House needs a Senior Analyst/Programmer capable of leading projects in the field of insurance applications. Experience of COBOL/RPG plus IBM/WANG background is preferred. Excellent prospects and benefits apply. Ref: C1027

CICS SYSTEMS PROGRAMMER — SUSSEX — c.£17,000+Mortgage
Leading financial organisation requires someone with a minimum of 3 years' IBM ASSEMBLER/CICS experience for their OS/VS1 installation. The successful applicant will be involved in the planning and installation of the Operating System/Program Products and T.P. networking. A structured career path and a full remuneration package are offered. Ref: A1041

SYSTEMS PROGRAMMERS — LONDON/HOME COUNTIES — to £16,500+Car
Our clients, one of the largest independent software support companies in the UK are currently seeking Systems Programmers with a sound working knowledge of MVS/JES 2 or DOS VSE/CICS, ASSEMBLER. Excellent benefits include BUPA, health insurance and paid overtime. Ref: D1178

ANALYST/PROGRAMMER — HERTS — to £16,000
Our clients are seeking someone with at least 2 years' COBOL experience to be involved with the maintenance of existing systems together with the development of new packages, working on their H.P. 3000 range. Excellent salary and working conditions apply. Ref: B1199

CONSULTANTS (ALL LEVELS) — LONOON — to £15,000+Car
Ideally the applicant will have up to 10 years' DP experience together with a knowledge of minis, micros and mainframes, together with financial and business type systems, dealing with clients on a level from small businesses to multi-national organisations. Ref: D1182

OEC ANALYST — LONDON — c.£14,500+Bonus
Our clients, a major financial organisation are seeking an Analyst with at least 2 years' background, preferably with on-line Real Time experience. Familiarity with VAX/VMS and CHAPS is preferred. An excellent salary, benefits and conditions of employment are offered. Ref: B1100

(BUSINESS) SYSTEMS ANALYSTS — MIDDX — £14,000
Expanding Software organisation needs Business Analysts with commercial applications experience and sound MINI background eg HP, DG, DEC, etc. These positions would ideally suit someone wishing to gain plenty of client involvement and exposure to a wide variety of application areas. Vacancies also exist for Systems Analysts with realtime experience, preferably with a DEC/VAX background. Ref: C1053

NEW MIDDLESEX-BASED COMPUTER CENTRE IBM 3083-MVS/JES2, TSO/SPF, CICS and IDMS urgently needs the following O.P. professionals:-

POSITION	COBOL	BAL	CICS	IBM O.S. (MVS PREF)	DATABASE (IOMS PREF)	SALARIES £
Senior Analyst Programmers	✓	useful	✓	any	any	£13,500
Senior Business Analysts	✓	useful	✓	any	any	£13,500
Analyst/Programmers	✓	useful	✓	any	any	£12,000
Analyst/Programmers	useful	✓	✓	any	any	£12,000

Superb prospects and benefits apply to this large International Financial Organisation. Ref: C1062

IBM ANALYST/PROGRAMMERS — SURREY — to £13,000+Benefits
Our client, an international manufacturing organisation requires O.P. professionals with a minimum of 2 years' MVS/COBOL. Successful applicants will be assigned to the development of major new systems using the latest online and database techniques. Full RELOCATION, BUPA AND FREE LIFE ASSURANCE are just some of the many benefits offered. Ref: A1109

SYSTEMS ANALYSTS — HERTS — c.£13,000
Leading manufacturing organisation requires someone with 2-3 years' Analysis expertise, together with COBOL/CICS, to assist in the implementation of new online design packages. Ref: B1166

WANG PROGRAMMER/(ANALYSTS) — LONDON — to £13,000
This Software House needs Programmers and Analysts Programmers to take leading roles in the development of major commercial applications. Experience of COBOL or BASIC 2 is essential. Knowledge of WANG equipment is a plus. Ref: C1291

COBOL/CICS PROGRAMMERS — LONOON/HOME COUNTIES — to £13,000
A leading software organisation require IBM COBOL Programmers to meet their expanding client's requirements. A working knowledge of CICS or DL1 is essential, as is the ability to communicate at senior and User level. A structured career path through to Systems/Consultancy status is guaranteed. Ref: D1054

OEC PROGRAMMER/ANALYST — LONDON — c.£12,500
Leading financial consortium requires someone to assist on major new projects, preferably with financial application expertise. A sound working knowledge of VAX/COBOL is essential Ref: B1089

FORTRAN SPECIALISTS — LONDON/HOME COUNTIES — c.£11,500+
Programmers are required to join existing development teams to work on a wide variety of applications including scientific, research, engineering and commercial projects using minis and mainframes, including DEC, HP, DG, etc. Excellent prospects for career advancement into analysis and design. Ref: C998

COBOL PROGRAMMERS — ESSEX — to £11,500
A leading manufacturing organisation require IBM COBOL Programmers for major new on-line development work. A working knowledge of CICS/DL1 would be advantageous. Benefits include FLEXITIME, five weeks' holiday etc. Ref: B1160.

ANALYST/PROGRAMMER — KENT — c.£11,000
Leading financial organisation is seeking someone preferably with an ICL background, to assist in the conversion of applications from DME to VME/B. COBOL is essential as the ability to liaise at senior level. Excellent company benefits apply. Ref: B1205

ICL PROGRAMMERS — HERTS — to £11,000
Our client needs Programming staff to join their existing development teams to work on a wide variety of applications within a commercial environment. Working knowledge of ME29 and/or DRS 20 range COBOL is essential. Excellent benefits and working conditions apply. Ref: D1128

VME/B PROGRAMMERS — SURREY — c.£10,500+Mortgage
Major financial organisation requires people with at least 18 months' ICL COBOL, VME/B experience to join their existing project teams currently developing major insurance applications on their ICL mainframe. A knowledge of IDMS and/or TPMS is preferred, although training will be given. The company is offering a wide range of benefits together with outstanding career progression. Ref: A1116

SENIOR ANALYST/ PROGRAMMER — SURREY — c.£10,000+Car+Bonuses
Our client, a leading Software House is seeking someone to help develop in-house accounting packages on their PRIME MINIS using FORTRAN. The successful applicant will have a working knowledge of computerised accounting systems together with a proven record in post sales support. This position offers an excellent remuneration package together with outstanding career progression. Ref: A1127

RPG2 PROGRAMMER — SURREY — £10,000+Car
Our clients are seeking someone with at least 2 years' experience preferably gained from an IBM System/34 installation. A working knowledge of DFU is essential. Excellent working conditions and benefits apply. Ref: B1139

TRAIN IN RPG3 — LONOON — c.£10,000
If you have at least two years' RPG2 experience our clients, a leading Computer Bureau will train you on their recently installed IBM System/38. The ability to liaise with Users together with a strong personality are essential. Ref: B1140

PROGRAMMER and PROG/ANALYST — BERKS — to £10,000
Our clients are seeking a Programmer and Programmer/Analyst with 1-2 years' COBOL experience gained within a commercial environment, to assist in major new development projects. Both positions offer a variety of applications work, involving occasional overseas travel. Ref: D1185

JUNIOR DATABUS PROGRAMMER — HERTS — £8,000+Benefits
Leading manufacturing company requires someone with up to 18 months' DATABUS experience to join their dynamic Team. The successful applicant will be required to develop new on line commercial systems and will also gain exposure to IBM 4300 hardware and software facilities. Excellent promotion prospects. Ref: A1061

OPERATIONS

IBM OPERATIONS CONTROLLER — LONOON — £14,500
The ideal applicant will have a minimum of 5 years' experience, aged 28 years' + together with good supervisory skills. Working knowledge of DOS/VSE, CICS, VM is essential. Ref: B1088

MVS OPERATIONS — ALL LEVELS — MIOOX — to £14,500+Benefits
Major new IBM site running under MVS/JES2, CICS, VTAM and IDMS, need Operations staff at all levels. Requirements include Operators to Shift Leader level, Production Control and Technical Support staff. Excellent prospects and benefits apply. Ref: C1196

MVS SENIOR OPERATOR — W. COUNTRY — to £13,000+relocation
Our client, a leading Finance House requires someone with a minimum of 2 years' MVS/JES2 experience, and a sound technical knowledge of JCL, IMS DB/DC, together with leadership qualities. BUPA and PROFIT SHARE are just some of the benefits offered. Ref: A1179

DOS OPERATORS — ESSEX/LONDON/SURREY — to £11,000+mortgage
Two financial organisations and a large retail company need Operators with 2-3 years' IBM OOS/VSE CICS, and VSAM, to work within 2 and 3 shift environments. Excellent prospects and benefits apply to these positions. Ref: C1208

DEC VAX OPERATORS (ALL LEVELS) — HERTS — to £9,000
Leading commercial organisation requires people with a minimum of 18 months' DEC VAX/VMS experience for their expanding Operations Division. Sound technical knowledge together with proven supervisory skills are essential for the senior posts. A well defined career path together with many company benefits are offered. Ref: A1204

ICL OPERATORS — LONDON — to £8,500+Benefits
This well-known international manufacturing company is currently seeking to recruit ICL VME/B or DME Operators with at least 2 years' experience. Excellent benefits and career prospects apply. Ref: D1120

IBM OPERATOR — MIOOX — to £8,000
A leading manufacturing organisation is seeking an Operator with a minimum of 12 months' experience of VM OS/VS1 together with a working knowledge of CICS. Usual large company benefits apply. Ref: D1081

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The above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives.
[6682]

WARWICK WOODWARD NEED AN ADDITIONAL RECRUITMENT CONSULTANT

Warwick Woodward is considered to be among the UK's most successful and professional recruitment consultancies. Our client and applicant testimonials speak volumes for our service to the industry.

We now need an additional recruitment consultant to help us continue with our expansion rate. We are not looking for paper shufflers or flashy sales people but would like to find the right person to dovetail with our existing team of experienced consultants.

The likely applicants would be able to demonstrate either a successful background in recruitment or they may be working in DP with a strong desire to move into this highly specialised field.

As background information, you will be interested to learn that Warwick Woodward is part of the flourishing Span Group of Companies whose other member companies are listed as follows:–

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A subsidiary based in Sydney marketing all the group's services.

Windmill Advertising
An advertising agency which produced this and all the group's advertisements.

The Successful applicant will be well rewarded both financially and in terms of job satisfaction. We expect the sort of performance that comes with maturity (not necessarily in years), sales ability, the gift of ideas and the desire to help others plan their career or their staffing requirements.

If you feel you have a positive contribution to make to Warwick Woodward you should talk to Janet Chilvers our manager on 01-734 7394 during working hours or on 01-241 3341 evenings and weekends.

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For both positions the successful applicants will have a background in any of the following:

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★ Systems Support/Operations Support
★ Assembler Programming

and ideally experience in OS, DOS and VM/CMS or MVS.

The Company is willing to consider a negotiable package to suit the right individual, and will of course offer full training in their products, both in Europe and the USA.

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PROGRAMMERS

	REF NO:
IBM, MANTIS	621 JM
DEC PDP 1124, RMS, MACRO	632 JM
IBM, BAL, CICS	629 JM
ICL 2900, COBOL, VME	617 JM
HONEYWELL DPS4/DPS8, COBOL	601 JM
HEWLETT PACKARD 3000, RAPID	554 JM
VAX, COBOL, FORTRAN, RMS	591 JM
IBM 8100, COBOL, DPPX, DPMX	609 JM
IBM 4300, ASSEMBLER, DOS, VSE, VM, CMS	639 NL
HP 200 Series, Experience of Survey packages	637 NL
IBM, COBOL, IMS, ADF	593 NL

ANALYST PROGRAMMER

IBM, COBOL, CICS, MVS	625 JM
IBM, PL1, CICS, MVS	434 JM
IBM SYSTEM 38, RPG3	641 JM
IBM, PL1, IMS, DB/DC, TSO/SPF	615 JM
VAX, INFO, **URGENT**	613 NL

ANALYST

IBM, DATABASE, IMS	633 NL

SYSTEM PROGRAMMER

IBM, MVS, CICS	622 NL

JUNIOR PROGRAMMERS

ICL 2900, COBOL, SCL	635 NL

For further information please ring (02403) 22201 or send a full cv to HPSL Plymouth House, 7 London Road, Amersham, Bucks HP7 0HE

(6749)

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UNIVAC 1100

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The above combined with a spirit of adventure plus the desire to enhance your existing skills will provide a *'not to be missed'* opportunity.

In addition to competitive US salaries, our client offers an excellent relocation package, free return flights and all the benefits of any major US company (including comprehensive insurance cover).

Full 'H' Visas will be provided and start dates are envisaged to be January/February 1984.

For more details and an insight into working in the USA, ring Janet Chilvers or Kay Williamson on 01-734 7394 or Janet Chilvers on 01-241 3341 evenings and weekends.

WARWICK WOODWARD — A SPAN GROUP COMPANY

(8730)

CROSSWORD

Solution to Prize Crossword No 46

1B	U	2C	K	E	D		4C	R	O	6T	C	H	E	8T
A		A		N			I		O		O			O
9D	E	B	A	T	E	10R		11S	A	T	I	S	F	Y
S		R		I		A		E		H		T		I
12H	E	A	D	R	E	S	T		13D	E	S	I	G	N
A		N		E		P		15B		T		L		G
16P	O	K	E		17F	U	N	A	T	O	N	E		
E				19A		T		R		P			18I	
		20G	A	R	R	I	S	O	N	22P	23O	W	N	
24T		L		T		N		N		25C		M		T
26R	E	A	M	E	R		28M	E	L	A	M	I	N	E
I		M		R		29S		S		T		N		R
27P	O	O	R	I	S	H		28S	E	T	D	O	W	N
U		U		E		E				L		U		E
30P	O	R	T	S	I	D	E		31N	E	S	S	I	E

This month's first prize of £10 has been won by Tim Hopkins, lecturer in computer science at the University of Kent, Canterbury. Prizes of £5 each are on their way to Alan Chaplin, a systems analyst at the DHSS in Newcastle Upon Tyne; and Dr David Flower, mathematical modeller at the Cement and Concrete Association, near Slough.

LONDON SCHOOL OF ECONOMICS COMPUTER SERVICE

VAX/VMS SUPPORT PROGRAMMER

The school has recently installed a large dual VAX 11/780 computer system operating under VMS, together with around 100 disc based colour workstations. A high speed local area network is planned for 1984, and a wide range of applications software and languages is to be made available with particular emphasis being placed on the development of an integrated software environment centred on the use of database graphics and other software tools.

Applications are invited for the post of Support Programmer in the computer service. The successful applicant will be involved in a variety of systems and application software projects in support of the development of the VAX service.

Applicants will be expected to have a good Honours Degree in a computer-based discipline. Salary according to age and experience will be in the range £7,400-£12,000.

Application forms returnable by 8th December 1983 may be obtained from the Personnel Department, LSE, Houghton Street, London WC2A 2AE. Telephone 01-404 4769.

(8740)

SENIOR ANALYST PROGRAMMERS

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Salary package to £14,000

Fraser Williams (Commercial Systems) is recruiting two senior analyst programmers to join support and development teams working on a range of package and bespoke systems.

You should have a minimum of four years' commercial systems experience and ideally be familiar with Data General computers and business Basic; experience with property systems is also desirable.

These positions offer excellent career prospects and varied work in a fast growing company within the Fraser Williams Group.

Please contact John Wright on 01-836 4041 or send your cv to:

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Production Controller

£7,919-£10,353 p.a. (including London Weighting)

The Law Society is responsible for the administration of the Legal Aid and Advice Scheme on behalf of the Government. To assist in carrying out this task it has a SPERRY UNIVAC multi Mainframe installed in Central London and Micro-Processors are being installed in 15 Area Offices throughout England and Wales.

We now require a Production Controller who will be responsible for the day-to-day running of Computer Operations including Data Control. Applicants must have considerable experience at a senior level in computer operation including staff management and at least two years' experience of an OS/3 system environment. Starting salary will be related to age and experience.

Requests for application forms should be addressed to the Personnel Officer, The Law Society, Greencroft House, 12 Roger Street, London WC1N 2JL.

16728)

TECHNICAL SOFTWARE/PROGRAMMING

Salary £9,000-£11,000

Our client is in the forefront of computer technology and is among the leaders in this field of advanced engineering applications.

Here is an opportunity for you to help expand the frontiers of new technologies. A number of exciting vacancies exist for Software Engineers/Programmers at various levels, who are keen to take this important step forward.

Ideally, applicants should be graduates in Computer Science, Mathematics or a relevant subject, with at least two years' experience in engineering applications on IBM mainframe machines using FORTRAN/TSO SPF.

This well-established company offers excellent prospects. Relocation expenses will be paid where appropriate.

Write or telephone for an application form quoting reference 20/BF.

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EAST LOTHIAN DISTRICT COUNCIL
Department of Finance

COMPUTER MANAGER

(Salary £11,382-£12,617)

Early in 1984 the District council will upgrade their existing computer facilities with the installation of ICL/2900 system. A number of financial applications are already on computer and it is intended to develop a full range of non-financial applications in the near future.

The new post of Computer Manager will be responsible to the director of Finance for advising on the planning, development and implementation of all applications, working closely with various council directors, together with control of the existing computer operations section.

Applicants should have had around three years' programming experience, preferably in COBOL, and at least two years' systems analysis/design experience preferably on interactive multi-programming systems.

The successful candidate will be required to have proven ability to communicate with all levels of staff and user departments. Local authority experience, though not essential would be an advantage.

Application forms and further particulars may be obtained from the Personnel Officer, County Buildings, Haddington (Tel: 062082 4161 ext. 208), to whom completed forms should be returned by 12th December 1983. Canvassing in any form will disqualify and candidates must disclose if any related to any member or senior officer of the council.

16729)

SALES BIT

Quality of Management – 74

How to make an appointment by telephone

MAKING appointments is an essential part of any salesman's life, no matter what his product, and while someone selling supercomputers has less involvement in fixing sales calls than the typical computer supplies salesman, the need for effective skills in securing appointments to meet decision makers and decision influencers is of equal importance to any type of salesperson operating within any marketplace.

Many salespeople experience difficulties in securing appointments, which usually means they have trouble with their use of the telephone. In most cases this is due to insufficient self-confidence and the absence of an effective technique when attempting to gain commitment over the telephone.

When telephoning to secure an interview with a prospective buyer it is essential to sell the appointment, not the product. Some would argue that the same still can be used for qualifying the potential of the prospect, but I disagree. In most cases it is possible to qualify the potential of a company by means other than via the decision maker (the telephone operator, trade directories, etc.) so why run the risk of being drawn into the sterile situation of attempting to sell or describe an unseen product to someone you do not know.

All you need to discuss over the telephone is which day and at what time a meeting can take place. Don't get drawn into providing product information since the buyer has agreed to make an appointment. There is no better way of having an appointment cancelled almost as soon as it is made.

A considerable factor in the buyer's willingness to see the salesman is curiosity. Once this has been even partially satisfied by verbal description he is likely to change his mind.

So you are actually calling to close a sale; ie, selling the appointment. Therefore, you are in telesales mode which means you must work to a pre-determined plan, work efficiently, close the sale and ring off.

A planned presentation is most important. It must contain an opening statement that will gain the buyer's attention: "Good morning Mr Prospect. My name is John Salesman of Ideal Computer Supplies. Your group managing director suggested I make contact with you."

This must be followed by a justification for the proposed meeting: "We have been able to reduce the expenditure on computer consumables for many similar clients to yourself by as much as 50%, and I would like to come and discuss the ways we could do the same for you."

Then comes the request for an appointment (of which, more later) and a terminating statement such as "Goodbye".

Brevity is the key. Once a time and place has been agreed the call should be concluded immediately.

Efficient organisation is absolutely essential. Simply locating a name in a directory is an ineffective and risky business. Lists should be compiled according to geographic location to allow efficient journey planning. Other information such as name of contact, telephone number, most likely area of products interest, possible application areas, etc, can make the process much easier to control and also provides a useful list for future reference.

So much for organisation; now back to the call itself. Having made an opening statement that is likely to gain the buyer's attention and justified the reason for meeting, it is necessary to gain his agreement. This is usually achieved by the use of an open close – the offer of alternatives that assume acceptance.

"I was hoping to be able to see you next week, or would you prefer the following week?"

"Fine. Which is easiest for you: the beginning or end of the week?"

"No problem. Shall we make it Thursday or Friday?"

"A.m. or p.m.?"

"Straight after lunch or is later for you at the end of the day?"

"What about 2.30pm?"

"I look forward to meeting you then. Goodbye."

It's up to you to decide how to along the optional path you wish to go.

It would be naive to assume that telephone prospecting will not meet with any resistance if an effective selling technique is employed. There is sales resistance throughout the selling cycle and the salesman has to be ready for it at all times. Often it is justified because the product is wholly inappropriate. But sales resistance occurs more frequently because the sales approach is entirely wrong and/or the salesman does not have the right answers when objections are raised.

I don't want to get into a discussion about the validity of sales objections; but it must always be remembered that so-called sales objections are usually requests for more information.

Therefore it makes a lot of sense to list all the usual, and even the not so usual, objections together with replies that have been proved by experience to provide a satisfactory answer to the questions of potential buyers while at the same time sustaining their interest.

Whatever happens, objections cannot be ignored whether they occur over the telephone or face-to-face. They must either be answered, or at least set aside. "That is a very important point that almost without exception was raised with our existing users when we first contacted them. It is a question that demands a detailed explanation which I will certainly want to give you when we meet."

This must be followed by another attempt then to close the sale of the appointment. Then, once you have got the order, offer your thanks and say goodbye in no more than 10 seconds.

A further consideration that applies to most selling situations is the use of a well conceived, concise letter either to prepare the prospect for the call or to confirm the date, time and place of the appointment that has been made. I believe it does a lot for the professional credibility of the caller and increases his chances of gaining the buyer's agreement to meet.

Alan Williams

PUZZLE ANSWER

WE know that the convoy is travelling at 15 miles per hour. If it is the constant speed of the despatch rider, he will overtake the convoy at a rate of $(x-15)$ mph and pass it on the way back at a rate of $(x+15)$mph.

He takes one-tenth of an hour for the two journeys, so we can set up the equation

$$\frac{2}{x-15}+\frac{2}{x+15}=\frac{1}{10}$$

which gives us $x^2-40x-225=0$. Therefore $(x-45)(x+5)=0$. Therefore the despatch rider's speed must be 45 mph.

Programmer/Analyst

c £8,500

"In the ever more cost-conscious times, a Group that has more than doubled its turnover to £50 million is an example of skilful management, professionalism and aggressive winning through."

Rural Staffordshire

Based in a beautiful area of rural Staffordshire, we are a highly successful Construction Group. So successful that in the last three years we have increased our turnover from £20m to £50m despite the recession in the industry.

We have always regarded computer based information systems as a vital component of our achievements to date and of our future development, and currently utilise a DEC PDP 11/34 with DIBOL programs operating under RSTS/E.

Because of the proposed expansion in both hardware and software, we now wish to recruit a Programmer/Analyst, probably in his/her mid to late 20's with experience of programming in an interactive language (BASIC would be ideal, but is not essential). Previous exposure to micros would be a distinct advantage, as would a knowledge of the construction industry.

We offer genuine prospects of advancement in a Company that is determined not to stand still. We fully intend to maintain and even improve our position in the industry.

For an immediate and confidential interview, please contact **Jim Mitchell** on **021-236 3781** (24 hour answering service) or **021-455 7653** (evenings and weekends to 9.00 p.m.).

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(6668)

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021-236 3781

NORTH
International House, 84 Deansgate, Manchester M3 2ER
061-833 0427

BELGIUM
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This role is best suited to an Electronics Technician with sound micro hardware and software experience who wishes to work in a dynamic sales environment. A Degree in computing/electronics or a relevant HND is desirable; this is not as important as sound practical experience and the ability to communicate effectively with non-technical personnel.

We can offer you an attractive income, and good career prospects in a dramatically expanding environment.

For further information, telephone **Trevor Money** on **021-236 3781** (24 hour answering service) or **021-449 1870** (evenings and weekends).

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(6668)

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